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A COMPLEAT BODY OF Chymistry:

Wherein is contained whatsoever is necessary for the attaining to the curious knowledge of this Art; Comprehending in general the whole practice thereof: and teaching the most exact preparation of *Animals*, *Vegetables* and *Minerals*, so as to preserve their essential Vertues.

Laid open in two Books, and dedicated to the use of all Apothecaries, &c.

By *Nicasius le Febure*, Royal Professor in Chymistry to his Majesty of *England*, and Apothecary in Ordinary to His Honorable Household.

Rendred into English by *P. D. C.* Esq. one of the Gentlemen of his Majesties Privy Chamber.

Part. I.

LONDON,

Printed by *Tho. Ratcliffe* for *Octavian Pulleyn* Junior, and are to be sold at the sign of the Bible in St. *Pauls* Church-yard near the little *North*-door. 1664.

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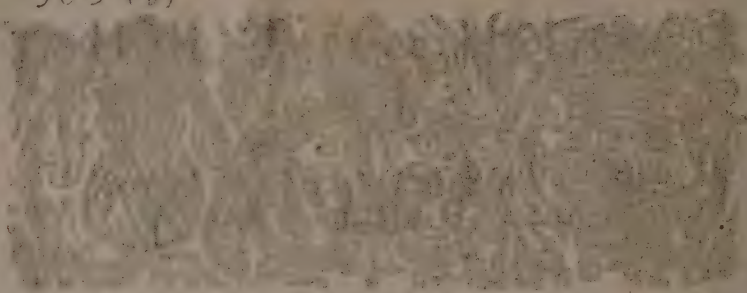

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To his most Excellent MAJESTY
CHARLES *the second, King of* England,
Scotland, France *and* Ireland, *&c.*

ROYAL SIR,

THE more I reflect upon the gracious favour your Majesty hath done me, by calling me to be one of your Majestie's servants : The more my mind is raised and excited to apply wholly her self to the study and disquisition of the Contexture and Compound, and of the resolution of Natural

bodies: whereby those wonderful Vertues, and specifical proprieties which Nature hath hidden in their Center, may be discovered & laid open. And as your Majesty is eminently versed in the nature of good, and knows, that good can only be properly called so and reputed such, insomuch as it is more obvions to the understanding, and more communicable in the practice; so likewise have I begun to follow this heroical Idea, from the time I did live in *France*, and there teach Chymical Philosophy, I did then by vocal expression declare as much as I was capable to do; and since GREAT SIR, I have compiled in *French* this Book, which now being made *English* by one of your Majesties Servants (a lover and great admirer of this noble Art) I presume to dedicate unto your Majesty; that having the stamp of this Language upon it self, it may go more

more currant amongst, and be better understood by your own subjects, by whom your Majesties Royal inclinations to the publick good being generally so well known through the vast extent of your Majestie's Dominions, this Gentleman hath concurred with me in the laudable intention of seconding this tenderness, and paternal care of your Sacred *Majesty*, for preserving & restoring the health of those three Nations which Providence hath subjected to your sacred Empire, and for instructing those which dedicate themselves to the practice of the Noblest and best kind of *Pharmacy*. To this end, I say, hath been translated this which I had written, that it might become more familiar and useful to the one for their health, to the other for their information and improvement of their knowledge. I hope, SIR, I shall have the good fortune from hence-

henceforth to produce ſome other things, which may beſt contribute to the ſatisfaction of that ſublime, Heroical, and moſt worthy curioſity of your *Majeſtie's* diſcerning Genius, and which according to your own Royal deſire and intention ſhall finde a ſucceſs towards the good and advantage, both of ſick and healthy, it is the earneſt wiſh of him, who to his laſt breath ſhall ever be,

Royal Sir,

Your Majeſties moſt humble, moſt obedient, and moſt faithful ſervant

N. le Febure.

To the Apothecaries of *England.*

SIRS,

I *Am very glad I have applyed my self during the time I was in* France *to some work useful to the English Nation, even before his Majesty of Great* Britain *had done me the honour and been graciously pleased to call me unto his Royal service. For in this Treatise of Chymistry you shall finde a Chapter of* Vegetables *and their preparation, which contains several specifical Remedies, to oppose and root out Scorbutical Diseases, which are but too frequent and connatural to the Clime of this your Country; so that with a very earnest and sincere heart and affection I do impart unto you, not only that which I have declared of most abstruse and secret particulars in the matter of* Vegetables, *but all the Contents of this whole Work also, both touching* Animals *and* Minerals, *where you likewise will meet with a considerable Harvest of Antiscorbutical Remedies. I wish all may succeed to the common good and advantage of your Nation, and to your own in particular; since it is the chief aym, and sole intention of our Great Soveraign. You shall know by the sequel of this Discourse, that I have now, and shall always have for you and the improvement of your knowledge, the same tenderneſse I have had for the* French Apothecaries; *I shall then advertise*

you,

you, that 'tis near five and thirty yeares since I was first addicted to Pharmacy, and that by a Father that was in his profession most exact, who employ'd himself particularly in the curious searches into things necessary for the Election, Preparation, and Composition of Medicines, which he kept in his Shop, to dispose of according to the precept and orders of the Physitians. I may say, as he was my Father, so he was my Master, from whom I received the first Elements of Pharmacy and Chymistry; who likewise in the first place enjoyned me to observe that excellent principle, viz. to exercise my Profession with Fidelity, suffering nothing to discredit the dignity of this Art: But above all, to follow punctually the directions of the Physitians, which ought to be the Fountain from whence all first receive the Noble knowledge of true Natural things, and the manner of preparing them well.

But this excellent Patron, by whom I ought to square all the Actions of my best life and Profession, soon forsook me, leaving me full of nothing but grief for his losse, and a true Prognostication of the decay of Pharmacy. For he foresaw that the body of the Physitians was divided in such a manner, that the branches were separated from the Roots, and that the nourishment necessary for their subsistance must fail them, without question, if he did not effect a good reunion, that might oblige the Physitians to continue their studies and searches into Naturals, and so communicate them to the Apothecaries. And these ought to receive them with due respect and gratitude, to the end that they might jointly dedicate themselves to the Publick good, without farther rending themselves by partialitie and particular interest, which hath ever been the ruin of those that are willing to indulge themselves from their due endeavour. Now when I saw my self deprived of the instructions of a Father and a Master, I applyed my self wholly to follow his last precep's. Whereupon I searcht among the dead for those Physitians that had written best of Pharmacy, and among these living, those that did practise best, and did labour

daily

daily to imbellish it by their new doctrines, and supplyes of good and wholsome Remedies. 'Twas my good fortune to finde at Sedan (*which was then the place where I was setled*) one Dr. Duhan *deceased, Dr. of Physick, and professor of* Philosophy, *who did me the favour to instruct and shew me much*; 'Twas of this *great Man that I confesse I receiv'd whatever did by degrees promote in me that good design of diligent searching into Physical verities, because those notions are absolutely necessary for our Apothecary, that would acquit himself well in his profession with requisite fidelity*; *and I can say in commendation of his admirable Genius, that* France *hath suffered much by his untimely death*; *for he was designing then to publish some Writings, which would have much illustrated the knowledge of things* Natural, Medicine & Pharmacy. *He had Anatomised Nature in General and particular sufficiently to acquit himself honorably of what he had undertaken, had he not been ravisht hence so soon to the infinite losse of the Common-wealth of Learning. Afterwards at* Paris, *I had the happinesse of liberty to converse with* M. du Clos *Dr. of Physick, who did me the favour to correct my defaults, and lead me as by the hand of his judgement and experience, through all that which I have undertaken in my endeavors to advance the dignity of* Pharmacy, *which now lies bending toward its ruine, if it be not upheld by its true Arches and Pillars, those faithful, learned, experienc'd and curious Physitians. This Excellent and rare Physitian denyed me none of those lights, or illustrations, that are necessary for the well-doing of those that addict themselves to the legitimate preparation of* Pharmacy; *so that I am indebted to Him for the well-being I have acquired in my Profession. Thus I have continued, till at length I was called some years since by the favor of* Monsr. Vallot, *the most worthy and Chief Physitian to our most invincible* Monarch, *as Apothecary and Distiller in ordinary to the King, to perform by his precepts & order lessons and operations in a course of the true* Phar-

nevertheless I have tryed the greater part, and may therefore judge of the possibility of their operation and the liberality and vertue of things by the practice and experience in other works which daily passe my hands. If you do but examine those Authors that have given you the description of some things, I will leave it to your discretion to judge the paines I have undertaken to denote to you those little observations which are necessary for operating, and without which it is impossible to avoid failing. I have followed the Method and Order of that knowing and expert Physitian Schrederus *who is yet living and a Stipendiary to the City of* Francfort, *to whom all Apothecaries are greatly obliged, for the excellent Chymical Dispensatory he hath publisht. I Recommend to you likewise the* Auspurge *Dispensatory, illustrated by the Remargues of that Great & brave Artist Mr.* Zwelfer, *Physitian to his Imperial Majesty, as likewise to the Appendix joyn'd to it, to the end that you may have greater knowledge of those Noble Lights which these two excellent persons have communicated in publick, and from whence I have drawn many things that will serve for your instruction if you please to give your self the trouble to read and practice them.*

Lastly, Readers, *I desire with the greatest passion that this may redound to the glory of Medicine, to the advancement of the one and other* Pharmacy, *but above all to your good and particular satisfaction.*

THE PREFACE.

THey that reckon Chymiſtry amongſt the modern Arts, and of but late invention, betray their knowledge both in the hiſtory of Nature, and the reading of ancient Authors: Since, in the firſt place, Chymiſtry is nothing elſe but the Art and Knowledge of Nature it ſelf; that it is by her means we examine the Principles, out of which natural bodies do conſiſt and are compounded; and by her are diſcovered unto us the cauſes and ſources of their generations and corruptions, and of all the changes and alterations to which they are lyable: And ſecondly, it is known, that the ancient Sages have taken from Chymiſtry, the occaſions and true motives of reaſoning upon natural things, and that their monuments and writings do teſtifie this Art to be of no freſher date then Nature it ſelf. To this do agree the teſtimony of the holy Scriptures, by whom we are taught, that even in the Worlds Infancy, *Tubal-Cain* the eighth of Mankinde from *Adam*, deſcen-

ded of *Cain*'s line, was an expert Artist in all Brass and Iron works, which he could not have been without a previous knowledge of Minerals, and without being well acquainted, that the Mineral nature contains in it self and comprehends the Metallick, as the purest part of its essence. But this knowledge cannot be attained unto, but by the help and skill of *Chymistry*; since it is by this Art we are informed, how a metallick, malleable and ductile body, may be extracted out of brickle and inform Minerals. Whence we do safely conclude, that he did receive this noble Art from his Predecessors, or being himself the inventor of it, left it to Posterity, as the richest Jewel they could inherit from him. This Assertion may be proved by the most ancient of Authors, and most worthy of credit; and so we have upon record, that *Moses* took the Golden Calf, an Idol of the *Israelites*, did calcine it, and being by him reduced to powder, caused those Idolaters to drink it, in a reproach and punishment of their sin. But no body, how little soever initiated in the mysteries of this Art, can be ignorant, that Gold is not to be reduced to Powder by Calcination, unless it be performed either by immersion in Regal Waters, Amamulgation with Mercury, or Projection; all which three Operations are only obvious to those which are fully acquainted both with the Theorical and Practical part of Chimistry. This truth is confirmed by *Hyppocrates*, when in his Book *de Diata*, he saith, *Artifices aurum molli igne liquant*: and all experimented Artists know, that Gold is not to be melted without some violence of fire, and that the action of fire doth rather purifie it, then destroy it, unless it be made tractable and volatile by the help of certain salts and powders, only known to few persons; and those specially who have had their hands in the work, and by

practice

practice attained the secrets of the Art. We could joyn to this, the authority of *Aristotle*, made use of by his Sectators of this Age, to oppose Chymistry, who saith, That the Inhabitants of *Umbria*, were wont to calcine Reeds, thereby to extract a salt out of them for their ordinary use; which they would not have undertook without being first taught by the principles of this Art, that Salt is a body of an uncorruptible nature, which by this vulgar calcination could not be destroyed: And if we run over all Ages since the Worlds Creation, we shall scarce finde any wherein some great man hath not raised himself a name to live in the remembrance of Posterity, by the help of Chymical Learning. Witnesse the *Ægyptian Mercury*, or famous *Trismegist*, whose works do at this day exercise the understanding of the greatest wits: Witnesse the first inventor of Glasse; and that other more skilfull Artist, which had attained to that admirable secret of making it malleable, and dyed with it, by the strange and tyrannical policy of the Emperour *Tiberius*. And do not *Geber*, *Raymundus Lullius*, *Peter* of *Apona*, *Basilius Valentinus*, *Isaac* the *Hollander*, and *Paracelsus*, sufficiently prove by their incomparable works, that Chymistry is the true Key of Nature; that by her means the expert Artist discovers her hidden beauty, aad that without her aid, no man shall ever attain to the true preparation of those remedies, which are only capable to encounter with that *Hydra* of various diseases wherewith humane nature is daily afflicted and assaulted? But we should prove ungratefull to our Age, and the memory of a most worthy and charitable Physician, and to the industry of one of the most ingenious and exact Artists that ever was, if we should passe by unmentioned the *subtil Van Helmont* lately deceased, and the *laborious Glauber*,

yet living, since they are as the two Beacons and Lights which we are to follow in the Theory of Chymistry, and the best practice of it: From their works then, and *Paracelsus*, we acknowledge to have compiled this *Abridgement of Theorical* and *Practical Chymistry*, which we shall divide in two parts: The first containing the Theory, the second the Practice of the Art: The first part divided in two Books, shall treat in the first, of the Principles and Elements of Natural things; and in the second, discover the springs and effects of purity and impurity in them: The second part shall also be divided into two Books; the first whereof is to contain all the necessary terms, both to reduce in practice, and understand the operations of the whole Art; and the second and last of all, shall open the means, and give a plain description, whereby to anatomize all mixt bodies, whether Vegetables, Animals, or Minerals, and thence to extract such remedies as are necessary for the cure of our diseases. But before the principal matter be entred upon, I have not thought it unnecessary, for the Readers satisfaction, to clear some few Queries, which use to be moved, touching the nature of this Noble Art.

A Preliminary Diſcourſe, containing ſome few Quæries about the Nature of Chymiſtry.

IT is one thing to treat of a Science and Art, in order to teach it, and it is another to diſcourſe upon the ſame: The firſt belongs properly to the Artiſt; the ſecond is a matter of deeper ſpeculation, and belongs to the enquiry of the Philoſopher, whoſe part it is, to treat of the method, object, end, and action of every Art or Science. According to theſe rules, we will ſuccinctly examine the moſt difficulties occurring in this Art, propounded in the following *Quaries*, and firſt, *Concerning the Names uſually given to Chymiſtry, whence they are derived?*

1 *Quæry.* This art, as many others, hath according to its ſeveral effects, received ſeveral names; the moſt ordinary is that of *Chymia*, or *Chymiſtry*, which ſeemeth to have its original from the *Greek* word χυμος, ſignifying Gum, or Liquor, becauſe it teacheth to reduce the moſt ſolid and compact bodies into Juice or Liquor. Sometimes it is called *Alchymia*, Alchimy, with an addition of the *Arabick* Particle ال *al*, * which is the indication of ſome remarkable thing; often times prefixed as a Particle: Others have called it *Alchamia*, ſuppoſing *Cham* one of the Sons of

* Anſwerable to the *Greek* Article ὁ, ἡ, τὸ.

Noah, to have been after the Flood inventer and restorer of Chymical Arts, but chiefly Metallick. Sometimes it is called *Spagiry*, which name includes the Noblest of her operations, namely to separate and joyn again substances, from the *Greek* * σπαγίειν; And because none of her operations can proceed without external fire, which doth excite the internal heat of bodies: It hath the name also *Pyrotechny*, as the Art of fire, from the *Greek* πῦρ & τεχνὴ, as to say, τεχνὴ τῆς πυρὸς If it be called the Art of *Hermes*, or *Hermetical*, it gives a note of her Antiquity; as *Distillatory Art*, or Art of Distillation, designs the most familiar of her operations. Of all these names we rather choose that of *Chymistry*, as being the most vulgarly known and received.

* ἀ σπᾶν & ἐγειρεῖν, to *divide*, and *re-unite again*.

2 Quæry. *If Chymistry ought to be called Art or Science? and of its definition.*

Before we enter into the definition of Chymistry, it's necessary to examine her *genus* and difference, the knowledge of both which is necessary, before a true definition of things can be given. We must then examine, whether it be an Art or a Science, before we can define it's true *genus*, and seek its difference in the object; since there is no part more essential in its definition. But to avoyd difficulties and intricacy, let us in few words explain the differency between Art and Science, and the several acceptions incident to the name of Chymistry.

The differency assigned between Art and Science, is only to be taken from the diversity of their intentional ends or purposes: For as it is the only scope of a Science to contemplate, and its end to attain knowledge by that contemplation, wherein it doth rest satisfied without putting the minde to a further inquiry: So Art is only bent

to

to operation, and never ceaseth untill it hath brought the purposes of the Artist to a desired accomplishment. Whence we may inferre, that Science is only of such things as are not in our power, and that Art doth busie it self upon such things as are in our power. This being granted, we must know, that as Chymistry is of a great extent, so it hath also several ends, and that as it hath all the sphere of Nature for its object, some things are under the power and reach of its disciples, others not; and besides these two kindes of subjects, which are wholly of a different nature, there is a third sort, partly under their power, and partly not: Whence we may in some manner conclude, that there are *three species of Chymistry*; the one wholly Scientifical and given to Contemplation, and may be very well stearmed *Philosophical*, having only its end in the knowledge of Nature, and of its effects; because it takes for object those only things which are constituted out of our power: So that this kinde of Chymical Philosophy, doth rest satisfied in the knowledge of the nature of the Heavens and Starres, the source and original of the Elements, the cause of Metcors, original of Minerals, and the way by which Plants and Animals are propagated; having not in her power to frame or make any one of all these things, but being sufficiently pleased with entertaining her discourse and reason upon the causes of so many various effects. The second *species* of Chymistry may be called *Iatrochymy* of Medicinal Chymistry, whose only end is operation; but not to be attained, unlesse by the means and helping hand of Contemplative and Scientifical Chymistry: for as the art of Physick, consists in two parts, Theory and Practice; the former being but a Clue and help to lead unto the other: so shall also Iatrochymy participate of both; the end of

its

its contemplating being only Operation, and that operation again purposing only the satisfaction of her disciples mindes, about the Contemplation both of things that are, and are not in our power. The third *species* is *Pharmaceutical Chymistry*, which hath for its end only operation, belonging to the Apothecary's profession, who is to direct his work by the Precepts and Orders of Iatrochymists: such as amongst the *French* Physicians is eminent at this day, *Monsieur Vallot*, first Physician to his most Christian Majesty, who doth eminently possesse the Theory and Practice of those three *species* of Chymistry which we have spoken of. This third *species* or kinde, hath for its object those things which come under our power to operate on them, and extract those different parts which constitute the compound thereof. Whence, from all that is above said, we may conclude, That *Chymistry* may be called both Science and Art in several respects, and so consequently *a practical or operative Science*.

Thus having found the *genus*, it remains we should finde the Difference, to compleat the definition. Some do define *Chymistry*, *The art of Transmutations*; others, *The art of Separations*; others, of both Transmutations and Separations: But as Transmutation and Separation are the effects of Chymistry, they cannot constitute its true and specifical Difference. There are several other wayes of definition used by others, but which do all come to what we have already said; therefore we must of necessity take the Difference from its Object, as it is above deduced. Some Authors make the *object of Chymistry* to be, Mixt bodies: but they are deceived; for the Elements which are unmixt bodies, are also under the verge of this Science: Others would have it the Natural body; but they

they alſo are deceived; ſince Chymiſtry hath under its conſideration the univerſal ſpirit, which is diveſted of all corporeity. We ſay then, that Chymiſtry makes all natural things, extracted by the omnipotent hand of God, in the Creation, out of the Abyſſe of the Chaos, her proper and adæquate object. But it is to be noted, that by natural things we do not underſtand bodies only, as they are ſaid to be compoſed of matter and form, but that we mean all created things, though deprived of bodies; and by oppoſing things natural to ſupernatural, there will be a ſufficient diſtinction ſet between the Creator and Creatures, to take away that reproach wherewith the Profeſſors of this Noble Science, are ordinarily ſpotted and traduced. Chymiſtry is then thus defined, *A practical and operative Science* (or knowledge) *of things natural*. It is a Science, as is already ſaid, becauſe it contemplates natural things; but becauſe it doth not end or reſt in Contemplation alwayes, but alters ſometimes natural things by the means and help of others, it may be called an operative or practical Science. To make ſhort, It's nothing elſe but Phyſick, or knowledge of Nature it ſelf, reduced to operation, and examining all it's Propoſitions by reaſons grounded upon the evidence and teſtimony of the ſenſes, and not relying upon bare and naked contemplation. This is then the difference between the Chymical-Phyſician, or Naturaliſt, and he that followes the Schools, or Dogmatical way; that, if you ask from the former, What parts do conſtitute a body, he will not give you a naked Anſwer, and ſatisfie by words and meer diſcourſe your curioſity, but he will endeavour to bring his demonſtrations under your ſight, and ſatisfie alſo your other ſenſes, by making you to touch, ſmell and taſte the very parts which enter'd in the compoſition of the body in queſtion, knowing very well that what remains after

the resolution of the mixt, according to the rules of Art, was that very substance that constituted it. But if you ask from the School-Philosopher, What doth make the compound of a body? He will answer you, that it is not yet well determined in the Schools: That, to be a body, it ought to have quantity, and consequently to be divisible; that a body ought to be composed of things divisible and indivisible, that is to say, of points and parts: but it cannot be composed of points, for a point is indivisible, and without quantity, and consequently cannot communicate any quantity to the body, since it hath none in it self; so that the answer should have concluded the body to be composed of divisible parts. But against this also will be objected, If it be so, let us know, whether the minutest part of the body is divisible or no; if it be answered, Divisible, then it is instanced again, that it is not the minutest, since there is yet a place left for division: but if this minutest part be affirmed to be indivisible, then the answer falleth again into the former difficulty, since it returns to affirm it a point, and consequently without quantity; of which being deprived, it is impossible it should communicate the same to the body, since divisibility is an essential property to quantity. You see then, that Chymistry doth reject such airy and notional Arguments, to stick close to visible and palpable things, as it will appear by the practice of this Art: For if we affirm, that such a body is compounded of an acid spirit, a bitter or pontick salt, and a sweet earth; we can make manifest by the touch, smell, taste, those parts which we extract, with all those conditions we do attribute unto them.

Now followeth the third and last Query: *What is the end of Chymistry?* It is not to be wondered, that ordinary Naturalists have attained to so little light, in their search and knowledge of natural bodies, since they did propose

to

to themselves no other end but contemplation; thinking that it became not them to set their hands to the work, thereby to attain a true knowledge of mixt bodies by Chymical Anatomy: They and their Sectators also, imagining they should wrong their Gravity and Doctoral State, to defile and fully their hands with the blackness of Coals. Much contrary hath been at all times the practice of Chymical Philosophers, though they made, as well as they, Contemplation their end: For they were perswaded, Practice and Operation were to be joyned, to receive a full delight and satisfaction, and lay firm and sure foundations to their Reasonings; unwilling to build upon the quick-sands of vain, frivolous, and fantastical opinions; which made them willingly undergo the charges, toyl and labour of Practical Chymistry; and not be discouraged by Watchings, and ill Savours, that they might attain the sooner to a solid and delightfull knowledge of the things of Nature, finding by the several experiments of their Works and Processes, the abstruse causes of its wonderfull effects, wherein they differ very much from the Empyricks; which do, without much reasoning, confound, obscure and intricate all things.

We do then conclude and affirm, that Operation is truely the general end of Chymistry: For the Philosopher operates, only the better to be able to contemplate; the Iatrochymist also to discover the better by his operation that which Nature performs in the body of a found man, that he may be capable to restore health, when by sickness it becomes vitiated and disordered. Lastly, the *Pharmaco*-Chymist operates, only to furnish wholsom and salutary remedies to the sick Patient, according to the judicious Prescriptions and Orders of the skilfull and learned Physician. Is it then to be wondred at, if Chymists do bestow so much labour and industry in purchasing this noble

knowledge, the perfection of which can never be attained without having first anatomized the greatest part of Nature? For as it is necessary to dissect the human body, if we will know its organical parts; so it is requisite, before we can discover the fairest and best part of natural substances, which are as it were hidden and involved within a secret rinde, that we should open their composites. Whence it may be concluded a very difficult matter for any to attain to the exact knowledge of natural things, without the previous guidance of Chymistry, and being acquainted with all its parts; neither can any be reckoned a perfect Physician without the help of Hermetical Philosophy, since it is the truest ground of Physick, and without which no Practitioner can deserve any other title then that of *Empyrick*: For it is not a Gown, or degrees taken in Universities, which constitute the Physician, but a solid knowledge of Nature, grounded upon sound Reason and mature judgement, improved by practice and experience. Whence it followeth, first, That Chymistry doth not meerly consist in the skill of preparing well a Remedy, as many do erroneously imagine; but in the using of it with due circumstances, and respect to the Theorems of Art, which is properly the true Physick: Secondly, that whosoever meddles with Chymical remedies, without the previous grounds of Theory, can deserve no other name then of an *Empyrick*, since he is altogether ignorant of the internal efficient causes of their effects, and cannot give the Physical reasons, why he doth administer such a remedy, for such and such disease; being not sufficiently grounded to know that these rare prescriptions of Chymistry, have their remedies grounded, not upon the actions of first and second qualities, but upon the specifical and internal vertues of their Chymical Principles, as will more evidently appear in the sequel of this Treatise.

A Compendious Body of CHYMISTRY.

Book I.

Of the Body of Chymistry *abbreviated.*

Part I.

Of the Principles and Elements of Natural things.

Chap. I.

Of the Universal Spirit.

THE title of this Chapter doth sufficiently evidence the error of those who maintain, that the Natural Body is the only object of Chymistry, since it treats also of the Universal Spirit, which is a substance voyd and divested of all Corporeity: hence it is, that with more reason, we did assign all natural things her adequate object, *viz.* all created things, both corporeal and spiritual, visible and invisible; and that because Chymistry doth not

only teach, how a body may be ſpiritualized, but how a ſpirit alſo may be fixt to become a body. For after having made the general and particular Anatomy of Nature, and ſearched and penetrated to its very center, this noble Science hath found, that the ſpring and root of all things was a ſpiritual ſubſtance, homogeneous and like unto it ſelf, to which ancient and modern Philoſophers have attributed ſeveral names, calling it a *Vital ſubſtance, a Spirit of life, Light, Balſom of life, Vital Mummy, Natural heat, Univerſal Spirit, Mercury of life*; and many more names, which to ſum up all here, would be needleſſe, ſince theſe are the principal appellations.

But as our Scope, in this firſt Book, is, to treat of the Principles and Elements of natural things, it ſeemeth to ſtand with reaſon, that we ſhou d in the firſt place ſpeak of the firſt Principle, by which the others are principiated; which Principle is nothing elſe but Nature it ſelf, or that univerſal Spirit, which makes the ſubject matter of this Chapter.

Paracelſus, in his book of Vexations, ſaith, that *Domus eſt ſemper mortua, ſed eam inhabitans vivit*: By which myſterious and figurative ſpeech, he endeavours to teach us, that the ſtrength of Nature is not included in the mortal and corruptible body; but that it is to be ſought in that wonderfull ſeed which hides it ſelf under the ſhade of the body, who of it ſelf hath no ſtrength or vertue, but fetches it all from that ſeminal ſpirit which it contains; a thing manifeſtly demonſtrable in the corruption of that body, during which the internal ſpirit doth fabricate it ſelf a new one, yea many new ones, by the deſtruction of the firſt: Which occaſioneth again our *German Triſmegiſtus* to ſay, that the power and vertue of death is efficacious; for then the ſpirit doth diſingage it ſelf from the bonds of the body, wherein he ſeemed to be fetter'd, and without efficacy, which he beginneth then to declare, when it ſhould ſeem more improbable. This truth is illuſtrated by the grain of Corn rotting in the earth: for the body being opened by that corruption, the internal ſeminal ſpirit therein incloſed, buds out, produceth a blade and ſtalk, and at the end of it an Ear, containing ſeveral grains of Corn, the very ſame in likeneſſe to that which periſhed and was rotten in the ground.

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This spiritual substance, which is the primary and sole substance of all things, contains in it self three distinct, but not differing substances: For they are homogeneous, as we have already said. But because there is found in it, a heat, a moysture, and a drought; and all three are distinct, but not differing; we say, that these three are but one essence, and the same radical substance; otherwise, as Nature is one, simple, and homogeneous; if the seminal Principles of these substances were *heterogeneous*, nothing would be found in nature one, simple, and homogeneous; which cannot be, in regard of the great inconveniences that would follow: For if heat did differ from moysture, it could not be nourisht and fed by it (which is notwithstanding necessary to be granted true) because nourishment is performed by things not differing, but of a like nature, and if the aliment should prove in the beginning, different from the alimentated, it would be necessary before it could passe into the substance of the last aliment, that it should be divested of all difference and dissimilar nature. Now it is granted on all hands, that radical moysture is the last aliment of natural heat; whence it followeth, that it cannot be of a different nature: Moreover, if they did differ, each one would endeavour to produce it's like, and the intestine warre, raised by this occasion, hinder the generation of the Compound. Let us then conclude, that this radical and fundamental substance of all things, is truely and really one in its essence, but hath a threefold denomination; for in respect of its natural heat and fire, it is called Sulphur; in respect of its moysture, which is the food and aliment of this fire, Mercury; and finally, in respect of the radical drought, which is, as it were, the knot and cement of the fire and moysture, it is called Salt; which we shall clear more particularly, when we treat hereafter of these three Principles by themselves, and examine, whether or no the one may be transmutated or converted into the other.

Having thus much spoken of the nature and essence of this universal spirit, we must now examine it's original, and the effects which it doth produce: And for the first point, it is not to be doubted, but that this spirit hath been created by the omnipotency of the first Cause, when it extracted this goodly fabrick of the world out of its nothing, and did harbour it in all the

parts

parts of this vast Machine, as the Poet doth acknowledge, when he saith,

Spiritus intus agit, totamq; infusa per orbem
Mens agitat molem.

For all the parts of the Universe are in continual need of its supply and presence, as we discover by the effects; and if any by accident hath been deprived thereof, he immediately returns to possesse it, and taking its place, restores life by his arrival. So we see, that having extracted from the salt of Vitriol several substances therein contained, if the dead earth, or *Caput mortuum*, be exposed to the air, in some sheltered place free from the washing of Rain, this spirit will not fail to return to it, being potently attracted by this Matrix, whose earnest longing it is to fill it self with this spirit, which makes the principal part of all things existent; for as things are only destinated to their operation, so can they not act, but by their efficient internal Principles. Therefore God, who ever works by the most compendious way, and will not every day busie his Omnipotency in the creation of new substances, hath once for all created this Universal Spirit, and placed it every where, that he might operate all in all things.

And as this Spirit is universal, so can he not be specificated but by the means of particular Ferments, which do print in it the Character and Idea of mixt bodies, to be made such or such determinate substances, according to the diversity of Matrixes, which receive this Spirit in themselves to make it a body. Thus in a Vitriolick Matrix, it becomes Vitriol; in an Arsenical, Arsenick; a Vegetable Matrix makes it a Plant; and so of all the rest. But two things are here to be noted, the first, That when we say, that this Spirit is specificated in such or such a Matrix, that we understand nothing else, but that this Spirit is imbodyed in such or such a Compound, according to the different Idea it hath received, by the means of particular ferment; and that, notwithstanding, it may be extracted again out of this compound, by divesting it by the help of Art, of this grosse body, to give it a more subtil one, and so bring it neerer its universal nature, and thus prepared, it doth manifest its own vertues much more emi-

eminently. The second thing observable is, that this spirit cannot return to its indifferency or universal nature, without having lost first of all the Idea received from the Matrix, in which it was embodyed: I say, it must have lost all this Idea, because although these spirits have been divested of their bodies by Art, they do notwithstanding preserve yet, for a while, the character and print of their first body; as it evidently appears in an aire poysoned with Realgarick and Arsenical spirits, which invisibly fill it, and do flye up and down; but when it hath quite lost this Idea, it reunites it self with the universal spirit, and if it meets with any fruitfull Matrix, being yet impregnated of its Idea, then it embodyes it self in several different compounds: as it is evident in Plants and Animals, which we see produced without seed, as Mushroms, Nettles, Mice, Frogs, Insects, and several other things; which to relate here, would be too tedious.

Thus much had we to say of the Universal Spirit, reserving to speak of the Matrixes which do specifie and corporifie it, and communicate him the Idea and Character of such a determinate exillence or body, where we shall treat of Elements hereafter.

Chap. II.

Of the several substances which are found after the Resolution and Anatomy of the Compound.

We may consider three several wayes, the Principles and Elements which do constitute the Compound: *Viz.* Or before its composition, or after its resolution, or whilest they do yet compose and constitute the Mixt. In the foregoing Chapter we have demonstrated the nature of Principles, before they enter in the composition of the body; now our task is, in this Chapter, to shew, what they are after the resolution, and during the composition of the Mixt; which we will do the more

 suc-

succinctly and in general terms at present, in regard we shall fall again more particularly upon the same matter in the following Chapters.

We have said heretofore, that the Universal Spirit, which radically contains in it self the three first Substances, was indifferent and in order to be made all things; and that he was specificated or embodyed, according to the Idea which it took from the Matrix wherein he was received; with the Minerals becoming Mineral, with Vegetables becoming a Plant, and with Animals Animal. Of this Idea we will speak more hereafter, as also of the Matrixes which do communicate it to the same.

During the composition of the Mixt, this spirit retains the nature and Idea which it took in the Matrix. Thus if it hath taken the nature of Sulphur, and been impregnated with its Idea, it communicates to the Compound, all the vertues and qualities of Sulphur. The same is to be said of Salt, and Mercury; for whensoever it is specificated, or (if it may be said without barbarism) Ideificated in any of these Principles, it shewes it immediately by its actions: Thus things are in their Composition either fine or volatil, liquid or solid, pure or impure, dissolved or co-agulated, and so of the rest, according as this spirit contained more or lesse Salt, Sulphur and Mercury, or more or lesse mixture of the grossenesse and terrestreity of the Matrixes. But after these Principles are separated one from the other, and from the terrestreity and corporeity which they draw from their Matrixes, they make it plain enough by their powerfull effects, that it is in this state they ought to be reduced, before they can work with efficacy, though they retain yet still their character and internal Idea. Thus some few drops of the true spirit of Wine will be more powerfull, then a whole glasse of this corporeal liquor wherein it was enclosed: A drop of spirit of Vitriol shall be of more effect then many ounces of the body. But you are to note also, that these powerfull effects and great vertues do last no longer in the spirits, than the Idea of the Mixt, whence they were extracted, remains with them: For as all things by a natural circulation in Nature, which corporifies to spiritualize, and spiritualizeth again to corporifie, have a strong tendency to their first Principle: so these spirits are still busie and working, in endeavouring

deavouring to divest and free themselves of the Ideas wherein they are fettered, that they may return to their first Principle, which is the Universal Spirit.

These things being so cleared, it remains to see how many substances Chymistry findes in the resolution of the Compounds, and what they are. *Aristotle* saith, that the resolution of things shewes their constitutive Principles: Upon this Axiom, hath its ground and basis our Philosophy, both by reason of the truth of it, and that Chymistry receives no Principles of sensible things but such as are obvious to, and fall under the Judicatory of the senses. And as the Anatomist hath found a certain number of similar parts, which constitute the humane body, whereof he makes the subject of his Art; so doth the Chymist endeavour to finde out the number of primary and similary substances of all Compounds, to exhibit them to the senses, that they may better judge what was their Office whilest yet joyned in their Mixt, having considered their vertue and efficacy, in this purity and abstracted nature; thence the name of *Sensal Philosophy* hath been by some given to the Chymist: For as the Anatomist doth make use of Rasors and other sharp Tools in his Dissections, to separate the better the several parts of the human body, which is his chief object: The same doth the Chymical Artist, fetching his instruction from Nature it self, to attain his end, which is nothing else but to joyn *homogeneal* and separate *heterogeneal* things by the means of Heat; for he doth nothing else but contribute his care and labour, to regulate the first according to the exigency of natural Agents and Patients, thereby to resolve the mixt bodies in their several substances, which he separates and purifies afterwards; for the fire never relents or slackens its action, but rather drives it on and encreaseth it, untill he findes no * *heterogeneity* left in the Compound.

* Or *Dissimilar parts.*

After that the Artist hath performed the Chymical resolution of bodies, he doth finde last of all five kinde of substances, which Chymistry admits for the Principles and Elements of natural bodies, whereupon are layd the grounds of its Doctrine, because in these five substances is found no Heterogeneity; these are; the Phlegmatick or waterish part, the Spirit or Mercury, the Sulphur

or Oyl, the Salt, and the Earth. Some give them other names; for it is free for every body to use their invention in such a case, being a thing of no great importance to neglect Names, and leave a latitude of freedom to every one therein, provided you may agree in the substance.

Now, as the Mixts cannot subsist in their integrity and perfect state, if you deprive them of any or these parts, so would also the knowledge of these substances prove defectuous, if they were separated one from another: wherefore we are to consider them, both absolutely and respectively. Three of these substances offer themselves to our sight, by the help of Chymical Operation, under the form of a Liquor, which are the Phlegm or Water, the Spirit, and the Oyl; the two other in a solid body, *viz.* Salt and Earth. The Water and Earth are commonly called passive Principles, material and of lesse efficacy then the other three; as contrary wise the Spirit or Mercury, Sulphur and Salt, are reckoned active and formal Principles, by reason of their penetrative and subtile vertue: Some do call the Earth and Water or Phlegm, Elements; and give the name of Principles to the three others. But if that definition which *Aristotle* hath given to Principles, is essential, *viz.* That *Principia neque ex aliis, neque ex se invicem fiunt*; Experience doth teach us, that these Substances cannot properly bear the name of Principles; because we have said above, that Mercury did change it self into Sulphur, moysture is the aliment or food of heat, and food transforms it self into the thing which is fed. Therefore the definition of Elements should rather sute with these substances, since they are the last thing to be found, after the resolution of the Compound, and that Elements are, *Ea quæ primo componunt Mixtum, & in quæ ultimo resolvitur.*

But because the Elements are considered two wayes, either as they are parts which do constitute the Universe, or as they only compound Mixt Bodies; to accommodate our selves to the ordinary way of expression, we shall attribute unto them the name of Principles, in regard they are constitutive parts of the Compound; and shall reserve the appellation of Elements, for those great and vast Bodyes, which are the general Matrixes of natural things.

CHAP.

Chap. III.

Of each Principle in particular.

Sect. I.

Wherein is treated, Whether those Five Principles, which remain after the dissolution of the Mixt, are Natural or Artificial.

CHymical Philosophy doth admit for Principles of the Compound, those five substances whereof we have treated above, because as it is a Science wholly sensal, it grounds its reasons only upon what senses do demonstrate unto her: And because having exactly anatomized a body natural, nothing is found beyond what may answer one of these five substances. But here may be a Question moved of no small difficulty, *viz. Whether these five Substances, are Natural or Artificial Principles, and not rather Principles of Disunion and destructive, than of Composition and Mixture?* To this may be answered, that it is not a matter of small difficulty, to know whether these Principles are natural, because we do not see them severed from the Compound, by a natural corruption or putrefaction; and that Chymical separation can only be performed by an artificial corruption caused by the help of the heat of fire: but if the business be judiciously and narrowly examined, it will appear, that although these substances can only be extracted by the help of Chymical Art, they are notwithstanding, meerly and purely Natural, since Art doth contribute nothing else but the Vessels to contain and receive them. Whence Nature being destitute of these Vessels, and we cannot without their help render those substances palpable and visible objects of the eye; it cannot seem strange, that we should not perceive these substances, in the natural corruption and solution of their Compounds: for Nature which is still in action and busie about productions, makes use of the said substances, and applyes

them to the generation of several other existencies, as *Aristotle* hath very well observed, when he saith that, *Corruptio unius est generatio alterius.* Thence it is, that in the natural putrefaction of bodies, a certain smell for the most part offends our Nostrils; a true token of the Air being impregnated with volatile spirits, which are Saline and Sulphureous; by which it appears, that the Mixt is radically dissolved, and thus it is performed: The Salt is dissolved by the help of the internal Phlegm or Water; and as the Salt is the bond of the two other Principles, so can they no longer subsist in their Mixt or Body; because heat which accompanyes all putrefactions, doth subtilize and carry them away, so that there remains nothing but what is of earthlinesse in the Compound. Therefore we do conclude, that although these Principles may not be made sensible and manifest, but by the Operations of Chymistry, it doth not debarre them notwithstanding from being natural, because if nature had not immixed them in all things, they could not indifferently be drawn from all bodies, as we daily see that they may; whence we inferre, that these substances are not extracted from the Mixt by transmutation, but by a meer natural separation, assisted by the heat of the Vessels and the hand of the Artist: for all things cannot indifferently and immediately be transformed in the like and same things. Therefore it cannot be thought strange, that other substances then the forementioned five, should be extracted from Mixt Bodyes by Chymical Operations, when the way of operating is altered, and proceeds by another way, then by the separation of Principles, such as are the *Quintessences*, *Arcana*, *Magisteries*, *Specificks*, *Tinctures*, *Extracts*, *Faculæ*, *Balsoms*, *Flowers*, *Panaceas* and *Elixirs*, whereof *Paracelsus* treats at large, in his Books of *Archidoxa*; since all these several preparations take their vertues from the various mixture of the Principles, whereof we are to speak in the following Sections, according to the order wherein they fall first under our senses. Where we shall consider them both as they yet compound the Mixt or Body, and as they are separated from it.

SECT.

Sect. II.

Of Phlegm or Water.

THat insipid liquor which commonly is called Water, hath by the Chymists the name of Phlegm given unto it, when it is separated from all other Mixture; it is the first substance obvious to the eye, when the fire doth act upon any Mixt body; it appears first in the shape of a vapour, and by condensation turns into liquor: Her presence is as necessary as any other Principle in the composition of the Mixt: And we do not agree with the opinion of those who hold it to be needlesse, provided the proportion and harmony required in Natural bodyes be preserved: for Phlegm is as the curb and rains of spirits, which dulls and allayes their sharpnesse, dissolves the salt, and weakens its corrosive acrimony, hindereth the inflamation of Sulphur, and bindes the Earth, and mixes it with the Salts; for as these two last Substances are brickle, crumbling and dry, so could they give but little firmnesse and consistency to the body without the help of this liquor: Thence it comes, that corruption and dissolution are introduced by its absence, which hath occasioned some to call it *the Principle of Destruction*; for it easily vapours away, which is the cause that the Mixt cannot long subsist in the same state and harmony, because this Principle being part in the body, easily and at every hour exhaleth it self and vapours away, which makes it obnoxious to the least outward injuries, procured as much by internal as external causes. Therefore those that do work about the preservation of Mixts, make it their study to preserve this Principle in the Compound; because it is he that keepeth all the other linked together, as it evidently appears by the operations of our Art: It can endure several alterations, without changing its nature; for if sometimes it turns it self into vapours, they are notwithstanding essentially nothing else but the very Phlegm it self. And here you shall note, that vapours are of a different nature; some are meerly aqueous and Phlegmatick; others spirituous and Mercurial, others Sulphureous and Oyly; and lastly, some participate of these three qualities together.

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It is moreover to be noted, that even the Salts, and Mineral and Metallick Earths, may be subtilized yet and turned into vapours differing from the aforesaid four qualities, yielding fixe and ponderous spirits, and flowers. Briefly, the Doctrine of fiery, aqueous, and aerial Meteors, may very well be related to the nature of these vapours and exhalations: For we see that aqueous vapours are easily condensed in water in the Limbecks, which the Spirituous or Oily are not, as requiring much more time and cooling; whence many consequences may be drawn, tending to the use of Physick, and particularly in the cure of those pains, which are thought to proceed from vapours and exhalations, and vulgarly are called Meteorisms, or griping vapours of the Ventricle and Spleen: For aqueous vapours cannot cause so much distention, because they are sooner compressed and condensed, then those which proceed from the Spirits, Oyls, and mixt Salts. Now as too much Phlegm doth extinguish the natural heat, and slackens the body, and dulls all his functions: so the too small proportion thereof, causeth as it were a burning and corrosion of it, whilest the Sulphur and fixed Spirit or Salt becomes predominant; an evident proof that the frame of mixt bodies doth only subsist by the harmony and just proportion of all its substances. To conclude what we have said of this Principle, you are to observe, that the Phlegme or wateriſh part of any Mixt, is ordinarily the fittest *Menstruum* to extract the tincture and Extract thereof, because it is endowed still with some character of its Compound, and some Idea of its vertue and faculty: but chiefly because it is for the most part accompanyed with the volatile Spirit of the Mixt, whereby it is rendred more capable easily to penetrate the same, and to extract its vertue, being partaker of a mixt nature of most subtile Sulphur and Mercury, which comes very neer to the Universal.

Sect. III.

Of the Spirit.

Some do call Mercury that second substance which falls under our sight in the Anatomy of the body; Others name it *radical Moysture*

Moysture, but we shall keep the appellation of *Spirit*, as the most in use. Notwithstanding, to avoyd error and mistake in these vulgar names of Principles, and that the Reader should not confound them with the appellations of Compounds; it is necessary to inform him, that they have received such names, only for the likenesse and correspondency they have with those substances from which they are denominated: See therefore you do not mistake Phlegm for Pituite, Mercury for Quick silver, and Sulphur for ordinary Brimstone, which is an ingredient in the composition of Gun-powder, mixed with Saltpeter; nor Salt for that common Salt familiar to our Tables, and much lesse Earth for such a substance as is Bol-Armeny or *Terra sigillata*, since all these are Bodies, composed of the same Principles, every one as we design by those names. *Spirit* then is nothing else but that aerial, subtile, penetrating, active substance, which we draw out of the Mixt Body, by the help of fire; whence it is to be concluded, that this Principle in it self is one, unmixt, and homogeneous, having taken its Idea from the character of its specifick and particular Matrix, as we shall deduce hereafter more at large, when we speak of the Elements, and their vertues, in the following Chapter. This substance of the Spirit is considered, either as it composeth yet the Mixt, or as it is separated from it: Separated, it is very penetrating; it cuts, opens, and attenuates the most solid and fixt Bodies, it excites heat in Fermentation, untieth the bonds of Salt and Sulphur, and makes them separable, resists corruption and rottennesse; yet by accident may be the cause of it; devours the Salt, and seises so greedily upon it, that it can scarce be separated but by an extreme violence of the fire: It is possessed of its own heat, and cold, for it doth not act by Elementary, but by his own proper and specifick qualities: To be brief, we fall short of proper terms to expresse duely his nature; since it is a true *Proteus*, which turns himself in all shapes, and as the Sun dryes and moystens, whiteneth and blackens, according to the diversity of subjects upon which it worketh. This same Spirit communicates several Noble qualities to the Phlegm; for it preserves him from corruption, makes it penetrative, and endoweth him almost with all his own activity: And in requital, the Phegm doth soften and bride

the fury of the Spirit, and makes it so tractable, that it may become usefull in a thousand wayes.

Now whilest this Spirit remains in a due harmony, and doth not exceed the terms of his Office in mixt Bodies, it becomes to them very serviceable, hindering the encrease of excrementitious matters, and of all other substances which may prove contrary or hurtfull to the nature of the Compound, multiplying his substance, and strengthning all his faculties, and that in Animals, Vegetables and Minerals. But if by the power of some other Agent, this Principle is forced to exceed the condition and constitution of the Mixt wherein it is, it alters the whole frame and œconomy of its Compound, as we shall shew more at large, when we come to treat of the Principles of Destructives.

Sect. IV.

Of Sulphur.

THis Principle, as well as the others, hath received several names; for it is called Oyl, Natural Fire, Light, Vital Fire, Balsom of Life and of Sulphur; and besides, many other appellations have been given by the Sons of Art, with which we will not fill up this Section: According to our usual custom, we will content our selves, with examining the nature of the thing, leaving the nicetie of Names to the overcurious.

That substance then, which sometimes we will call Oyl, sometimes Sulphur, is the third in order of those we extract by the artificial resolution of the Compound; we give it this name because it is an Oleagineous substance, which easily takes fire, being of a combustible nature, by whose means also the Mixts are rendred such. It is called Principle as well as the others, because being separated from the Compound, it is homogeneous in all his parts, as the other Principles are. This Substance is also considered two several wayes: For being loosened from the others, it swims above the Phlegm and Spirits, because it is lighter and more ætherial; but if it be not absolutely separated from the Salt and the Earth, it will sometimes precipitate it self to the bottom, or swim in the middle, because the Sulphur sup-

supports and holds up the Earth and Salt, untill it be overcome by their weight; it receives not easily nor willingly the Salt, without being first joyned with the Spirit, or before the Salt be circulated with the Spirit, wherewith it hath a great sympathy; and then they easily receive the Sulphur together; a thing very well worth noting, since without this observation, no *Panacea's*, *Magisteries*, *Essences*, *Arcana's*, nor other most secret Remedies, which are unknown to vulgar Physicians, and *Galenical* Apothecaries, can be made: no more then these can give a reason of the noblest natural effects; because for the most part they assign them to the four first or primary Qualities.

This Sulphur is of the matter of those fiery Meteors, which are kindled in the several Regions of the Air, and are sometimes found in the Cavities of the earth, and chiefly in those places, where Minerals and Metals are generated; it resists to Cold, and never congeals, being the Principle of Heat; it never suffers corruption, preserves from it those things which are immersed in it, preventing the penetration of Air, it sweetens the acrimony of Salt, by whose help it is fixed and coagulated; doth so powerfully blunt the sharpnesse of Spirits, that the most strong Waters have no power over it, nor those Bodies where it abounds. His Office is, to binde and allay the Earth which is but dust, with the Salt in the frame of Mixt Bodies: It causes also the strict union of the other Principles, moderating the too great dryness of Salt, and fluidity of Spirit, and finally by his means, these three Principles grow into a viscuous compact substance, which often times hardens afterwards, by the mixture of the Earth and Phlegm.

Sect. V.

Of Salt.

The Phlegm, Spirit, and Sulphur, are volatile Principles flying from the Fire, which makes them ascend, and sublimate into vapours; whence it followeth, that they were unable to endure the Mixt with a requisite solidity for its duration, unless there were some other fixt and permanent substances joyned unto

it; of which we finde two wholly differing from the others in the last dissolution of Bodies. The first is a plain and unmixt Earth, without any remarkable quality, except it be drineſs and heavineſs: The second is a Substance; which resists fire, and dissolves in water, known to Chymists by the name of *Salt*.

These two substances, which are as it were the basis and foundation of the Mixt, though confounded by the action of fire, are notwithstanding two several Principles, in which are to be found such essential differences, that there is between them no Analogy. The salt doth manifest it self by his qualities, which are as numberless as efficacious and powerfull, much more without compare then the Earth, which is almost without action or vertue.

The Salt being exactly severed from the other Principles, offers it self to our senses in a drie, crumbling, and brickle body, easily reduced to powder, a certain sign of his external drought; but it is endowed also of an internal moysture, witness its fusibility; it is fixt, and incombustible, resisting to fire, wherein it growes purer, suffereth no putrefaction, and is (as it were) eternal, being capable to preserve it self without alteration. This substance is thought by some, to be the first subject and cause of all savours, as the Sulphur of odours, and Mercury of colours; but we shall refute this Assertion, when we come to handle this Subject hereafter.

Salt is easily dissolved in moysture, and being dissolved bears up the Sulphur, and joyns it to it self by the means of the Spirit. The usefulness of it is very great; for it hinders fire from consuming hastily the Oyl; which is the cause that floated Wood doth not yield a long flame, being deprived of the greatest part of its Salt: It is salt which makes the earth fruitfull, being with the Oyl, instead of a vital Balsom to Vegetables; and thence it comes, that Grounds too much washed with rain, lose their fertility: It conduceth also to the generation of Animals, and hardens Minerals also, and giveth them their consistency: But you are to note, that all these effects do only follow, when it is dispensed in Bodies, with a just proportion; for if it exceeds, generation and encrease are thereby hindered, because it corrodes and destroyes with his acrimony, whatsoever the other substances can produce.

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But that you may not be deceived by the ambiguity of the word *Salt*, you are to know, that there is a certain Central Salt, radical Principle of all things, which is the first body wherewith the Universal Spirit closeth it self, and contains the other Principles; some have called it *Hermetical Salt*, because, say they, *Hermes* was the first that spoke of it: but it may be more properly and lawfully called the *Hermaphroditical Salt*, because it participates of all natures, and is indifferently inclined to all. This Salt is the fundamental ground of all Nature, being the Center where all her vertues do meet, and the true seeds of all things, being nothing else, but a congealed, well digested and concocted Salt: The truth of which evidently appears in this, that if you boyl in water any Seed whatsoever, it becomes immediately barren, because this seminal vertue consists in a very subtile Salt, which dissolves and vanishes in the water; whence we learn, that Nature beginneth the production of all things by a central and radical Salt, which she extracts out of the Universal Spirit. The difference between these two Salts is, that the first breeds the other in the Mixt, and that the *Hermaphroditical* Salt is ever a Principle of Life, and the other proves sometimes a Principle of Death. But because we are to treat hereunder, of the Principles of death and destruction, we shall not insist in these Sections upon the effects of either, because the knowledge of Contraries being the same, they shall be more illustrated when opposed one to another.

Sect. VI.

Of the Earth.

THe Earth is the last of Principles, both of fixt and volatile; it is a naked substance, divested of all manifest qualities, except dryness and astringency; for as concerning Weight, we shall speak of it hereafter: I say, manifest quality, because this Earth retains alwayes in it self, the indelible character of that vertue she was once possessed with, *viz.* of embodying or corporizing, and Ideifying the Universal Spirit. The first Idea she imparts to it, is that of *Hermaphroditical* Salt, which restores

to this Earth, her first Principles, so that the mixt is as it were by it resuscitated, since from the same body, the same specifical Principles, which by Chymical separation were before separated, may be extracted again; as we shall explain hereafter more at large, when we come to treat of this matter. Let us consider at present, the usefulness of this substance, very necessary in the Compound of the body, since it is by her means that it receives firmness and consistency: For being united to the Salt, it causes presently the corporeity, and consequently, the continuity of the parts: Mixt with the Oyl or Sulphur, it causes tenacity, viscosity, and lentor, *i. e.* slowness in motion; it yields then with Salt, hardness and firmness; for as Salt is of a brickle and crumbling nature, and easily reduced to dust, it could not intimately be united to the earth, to give it a solidity, but by the help of moyst and liquid substances. The inconveniencies of this Principle are manifested in this, that the Mixt requireth abundance of the other substances: For when Earth doth predominate, it makes the body heavy, slow, cold and stupid, according to the nature of Composites, wherein it doth abound.

But you shall notwithstanding take notice, by the By, that it is not the sole Earth which causeth the heavineſs of the body, as those Philosophers do assert, who are little acquainted with our handy-work: For we finde more Earth in a pound of Cork after its resolution, though it be a very light body, then in three or four of *Box* and *Guaiacum*, which are so heavy, that (against the nature of other Woods) they can scarce hold above water: Whence we must of necessity conclude, that the greatest heavineſs and weight of Bodies, proceeds of Salt and Spirits abounding in these Woods, whereof Cork is deprived. It is also experimentally seen, that a Glass filled with Spirit of Vitriol, or some other sharp Spirit well rectified, shall outweigh two or three Glasses of the same bigness, filled with water, or any other like Liquor. I know it will be objected against this Experiment, that the heavineſs of *Guaiacum* proceeds from the compactedness of its substance, almost impenetrable to Air, and that the lightness of Cork doth proceed from the great quantity of big and large pores it hath, which are filled with that light Element, and cause it to swim above water, contrarily to *Box* and *Guaiacum*. But this

this Answer is not fully satisfactory; for if levity and heavinesse are caused by rarefaction and condensation, it will follow thence, that those many pores in Cork, must proceed from the abundance of earth in it, and the defect of the other Principles; and hence it will be concluded necessarily, that Earth is porous of it self; and secondly, that it causeth porosity in Bodies: For the Axiom is true, *Nihil dat quod non habet; &, Propter quod unumquodque est tale, illud est magis tale,* say the *Peripatetick* or Ambulatory Philosophers; and so shall they be forced to assert by their own reason, though contradictory to their Maxims, that Earth causeth not only the levity of Mixts, but that it is also light of its own nature, which in their Philosophy should be a Monster: and contradicts also to experience; for of all the Principles, when they are duely and according to Art separated one from the other, none is heavyer then the Earth, which ever subsideth in the bottom of the Glass, when they are mixt together.

To come out of this Labyrinth, a higher Philosophy is required, and fair *Ariadne*, which is *Nature* it self, must be courted, to obtain this Clue, and finde the issue of its winding paths; which if we can happily attain to, we shall be taught by the operations of Chymistry, that there is two sorts of levity and heavinesse, the one internal, the other external; the one found in the Principles, whilest they yet compound the Mixt, the other when they are separated asunder.

Chap. IV.

Of Elements in General and Special.

Sect. I.

Of Elements in General.

THE difference which *Peripateticks* make between Principle and Element, is, as they say, that Principles cannot take one anothers nature, neither be metamorphosed or transmuted the one into the other; but that Elements are Substances,

ſtances which of themſelves are compounded of Principles, and do compound the Mixts afterwards at their turns, and ſo theſe ſubſtances can eaſily paſs one into anothers nature; the truth whereof we ſhall examine hereafter. But in *Hermetical Philoſophy*, Elements are taken for thoſe four great Bodies, which are as it were the Matrixes, containing in themſelves, the vertues, ſeeds, characters and Idea's imparted to them by the Univerſal Spirit. But before we enter into this kinde of Philoſophy, after we have ſpoken in the foregoing Chapter of the nature of Principles, we muſt now treat in this of Elements; where we will firſt examine, what reaſon the *Galeniſts* have to ſay, that Mixt Bodies are compounded of thoſe Elements, and whether there are not more ſubſtances found in their Diſſolutions, then thoſe which their Books make mention of.

They ſay, that when Wood is burned in the Fire, four ſubſtances do manifeſtly occur to the ſenſes, and do aſſure us, that theſe are the four Elements, which did conſtitute the Mixt before it was deſtroyed by the fire. Let us examine, whether they have diſcovered all, and left no occaſion unto us of farther inquiry.

Their reaſons are grounded upon the following experience: The four Elements, ſay they, are made manifeſt to our ſenſes, when the Wood comes to be examined and conſumed by Fire; for the Flame repreſents the Fire, the Smoak Air, the Moyſture iſſuing from the ends of the Wood Water, and the Aſhes Earth; whence they draw this conſequence, That ſince we ſee but thoſe four ſubſtances, there was none other that could conſtitute the Compound. But, though we grant thoſe four to be all what can appear in ſo groſs an operation, yet, if we will proceed with more Art and exactneſs, we ſhall not want to finde ſomething more in it: For if you take the pains to encloſe ſhreds or filings of Wood in a well luted Retort, and fit a capacious Recipient to it, and give a graduate and regular fire, you ſhall diſcover two ſubſtances, which without this Art cannot fall under our ſenſes, and this is the Apple of Diſcord between *Peripatetical* and *Hermetical* Philoſophers: Which before I proceed further, I will endeavour to reconcile. To this end, we grant to both Parties, that Principles and Elements, are found in all Mixts; but let us

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see how. When the first say, that the Smoak in burning Wood represents the Air, we say they are in the right, for it is only by way of Analogy and similitude, that this Smoak can obtain the denomination of Air; For it is not really Air, since experience sheweth us, that this smoak imprisoned in a Recipient, hath qualities very much differing from that of Air; whence we inferr, it can be called Air, only by Analogy. And this is the point in which both do differ, concerning this substance, that the *Peripateticks* call it *Air*, and Chymists *Mercury*: Let them dispute of the words, provided we do agree in the thing it self.

We come now to the other Element of *Peripateticks*, *viz.* Fire, and the other Principle of Chymisters, Sulphury, which we are to examine, and see in what they agree, and wherein they differ. The first say, that in the action of Fire preying upon Wood, its action is manifest to the senses. But our answer to this sensible experiment is, that whatsoever destroyes the Mixt, cannot be a constitutive Principle of it, but rather a Principle of destruction: If they return, That no fire is actually in the Mixt, but only potentially: therein we will close with them, and reconcile them with the Chymists, who name their Sulphur that potential fire of *Peripateticks*. To end then their Controversie, I say, that the fire which we see to issue out of burning Wood, is nothing else but the Sulphur of Wood actuated; for the actuating of Sulphur doth consist in its inflamation. As for the Ashes which they will have to be the Element of Earth; that Salt which by washings and Elixivation is extracted out of them, should sufficiently perswade these Philosophers, that the Chymists are as well, if not better, grounded in establishing the number of their Principles.

The number then of Principles and Elements which compound Mixt Bodies, being thus cleared, it remains for us to say something of the Elements, both as to their number and propriety, before we speak of them severally, as also of their Matrixes and Fruits.

It is a thing to be wondred at, that the Sectators of *Aristotle*, should not yet since so long a time that his Writings and Philosophy are in credit, have determined the number of Elements: For some amongst them with great reason do affirm, that there is no Elementary Fire; I say, with reason, if it be understood in

their own ſenſe: for, to what purpoſe is it to admit an Element of Fire under the ſphere of the Moon, ſince we aſſign to it no other uſe then to enter in the Compound of Mixt Bodies; and that, beſides that Element ſo placed, is at too great a diſtance from the place where Mixts are generated, we have found that the fire in them is nothing elſe but their Sulphur: therefore I do conclude here, with *Paracelſus*, that there is no other Elementary fire, but the Heaven it ſelf, and its light.

As touching the general proprieties of Elements, two Quæries uſe to be made on them: The firſt, If they are pure; the ſecond, If they are tranſmutable one into the other. Concerning their purity, I anſwer, that if they were ſuch, they ſhould prove of no uſe; for a pure Earth were barren, ſince it ſhould have in it ſelf no ſeeds of procreation and fruitfulneſs; and the brine of the Sea, and ſeveral qualities of the Air, ſufficiently confirm this Aſſertion. But as concerning their mutual tranſmutation of one into the other, it is not ſo eaſily performed as vulgar Philoſophers do imagine, though we cannot ſay it to be abſolutely impoſſible: For they teach, that Earth is changed into Water, Water into Air, Air into Fire, and finally that Fire by another tranſmutation returns into Earth: Becauſe, although Earth and Water do ſometimes aſſume and take the ſhape and form of Exhalations, yet theſe vapours are alwayes eſſentially Water or Earth, as it is made plain by their re-aſſuming their firſt nature. This change then cannot happen, unleſs ſuch or ſuch Element being totally ſpiritualized, comes to loſe its Elementary Idea, and to be re-united afterwards to the Univerſal Spirit, who might then give him the Idea of another Element, whoſe body he might have, by the character imprinted by the Matrix.

For this reaſon do Chymiſts aſſign two natures to Elements, in their deſcription of them; *viz.* the one Spiritual, the other Corporal; the vertue of the one being hidden in the boſom of the other. Hence it comes, that when they will have any thing to act efficaciouſly, they endeavour as much as in them lies, to deveſt it from its Body, and ſpiritualize it: For as Nature cannot communicate its Treaſures unto us, but under the ſhade of Bodies, ſo can we do no more then to deveſt them by the help of Art from the groſſeſt and moſt material part of that Body, to apply

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to our uses: for if we urge them, and spiritualize too much, so as that they should flye from our sight and contact, then do they lose their bodily Idea and character, and return again to the Universal Spirit, to re-assume after some space of time their first Idea, or some other differing from it, by the character and Idea of such or such a Matrix, inclosed in such or such part of such or such Element.

These are the true effects of Elements, which are, as we have said, to corporifie or identifie the Universal Spirit, by the several ferments contained in their particular Matrixes, and to give it those characters which they had imprinted in themselves; for, as we have said, this Spirit is undetermined to all things, and may be made all in all. This happens, because Nature is never idle, but perpetually in action; and as it is a finited essence, so can it neither create or annihilate any other, because such an act belongs only to an infinite power. But this matter being of too large an extent to be treated of here, we shall referre it to the following Sections, where we shall particularly treat of Elements, which are the Universal Matrixes of all things, where also we will speak of particular Matrixes, that imprint the Idea's and characters to the Spirit, whereby so many fruits are produced, which daily fall under our use, by the help and means of natural fermentations.

Sect. II.

Of the Element of Fire.

Since all things tend to their Center, and place of their natural rest, it is a manifest sign that they are thereunto inclined and drawn, by a natural vertue, hidden under the shade of their bodies; this vertue can be nothing else, but that Magnetick faculty wherewith each Element is endowed, to draw its like to it self, and repell its contrary: For as the Load-stone attracts the Iron of one side, and rejects it of the other, the Elements do likewise by a like power attract those things which correspond with their nature, and repell and drive away from them, those that be of a different: since then fire ascends, it is not to be doubted but

that this effect doth proceed from a tendency it hath to its natural place, which is Elementary Fire, where it is carryed by its own proper spirit, when it forsakes the commerce of the other Elements.

To understand well this Doctrine, it is first to be known, that the Element of Fire is not enclosed under the sphere of the Moon, as we have already hinted above, and that consequently no other Fire can be admitted, then the *Æther* or Heaven it self, which hath its Matrixes and fruits, as the other Elements. For that great number of Stars which we see moving in that vast Element, are nothing else but particular Wombs or Matrixes, where the Universal Spirit takes a very perfect Idea, before it descends to incorporate it self in the Matrixes of the other Elements; and thence may be illustrated the sense and meaning of that Axiom of the *Great Hermes*, which many look upon as a *Chimæra*; that, *Nihil est inferius, quod non sit superius & vice versâ*; and that opinion of *Paracelsus*, who doth affirm, That every thing hath its peculiar Heaven and *Astrum*: For to speak true, the vertue of all sublunar things cometh from Heaven, by the means of that Spirit whereof we have already so much spoken. *Paracelsus* names the knowledge of this Doctrine, *Pyromancy*, especially when he treats of the *Theory of Diseases*; for we see that Elements are as it were the Receptacles and Domicils of all those things that are endowed with an intellectual, sensitive, or vegetative knowledge, or also Mineral, which some do call the fruits of Elements: And according to that Doctrine, it is not to be doubted, that as the Heavens are most perfect and spiritual, so they are the Mansion and Receptacle of those spiritual and perfect substances which are called Intelligences.

But you must note, that when I have said, that Fire in its ascent doth forsake the commerce of others Elements, that I have so spoken, only because the visible Fire which we use on our Hearths, is nothing else but a Meteor or Body imperfectly mixt of some Elements or Principles, wherein Fire or Sulphur are predominant, and its flame an oleagineous and sulphureous smoak kindled; and when fire is spiritualized by that forsaking, it never ceaseth till it hath returned to its natural place, which of necessity must be above, and beyond the Air, since we see it in the

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Air it self in a perpetual action, as willing to forsake it. It is also by the means of this fire, which is still aspiring to its Center, that the Clouds, which are hot and moyst Vapours, or Meteors, compounded of Fire and Water, ascend to the second or middle Region of the Air, where the fire forsaking the water to ascend still higher, and so this Water finding it self destituted of the Fire, which did bear it up in the Form of a Vapour, is forced to fall back in the form and substance of *rain*.

And here you are to note that Circulation, which Nature makes by the means of that Universal Spirit, already described; for as its power is limited, and that she can, neither create nor produce any new thing, so can she neither create nor annihilate any substance already created; as for Example, The continual Influxes of Heaven and its Starres, do incessantly produce the Fire or Spiritual Light, which beginneth first to embody it self in the Air, where it takes the Idea of *Hermaphroditical* Salt, which thence falls in the waters and upon the earth, where it takes a body, either Mineral, Vegetable, or Animal, by the character and efficacy of some particular Matrix, imprinted in it by the action of its ferment; And when this body comes to be dissolved by the means of some potent Agent, its Sulphur, Fire or Light corporified is so depurated, that the Starrs attract it for their food; for the Stars, (as we suppose) are nothing else but a Fire, a Sulphur, or some most pure Light actuated: Not unlike the link of a Lamp, which once being lighted, doth continually attract the Oyl to feed its flame: so that the Starrs in the same manner attract this fire, which is depurated by that action, and spiritualize it anew, to precipitate again by their kinde influency, and restore it to the Air, the Water, and the Earth, to corporifie it, or give it a body again: Thus you see nothing is lost in Nature, which maintains its great work, and wheel, by these two principal actions, *viz.* By spiritualizing to corporifie, and corporifying to spiritualize, as we have already said; and these are as two Ladders, whereby the heavenly influences descend down, and re-ascend again from the lower parts: for the Heavenly vertues should not be so durable, and would daily decay, by reason of the perpetual Conflux of so many productive substances, without this constant Circulation; unless that without any ne-

ceſſity we would admit a perpetual creation and deſtruction of ſublunary ſubſtances, which could not be without a Miracle, and being a thing of daily courſe, might be called a miracle without miracle, and ſo imply a manifeſt contradiction: What Spring do you think could ſupply the matter which feeds thoſe vaſt *Ætnean* flames, which have laſted already ſo many Ages, were it not for this Circulation of Nature? And what could ſince ſo many years entertain the ſtreaming ſources of thoſe mineral, hot, and acid Fountains which the World doth afford in ſo many places, unleſs it were by the help of this wonderfull Ladder, and concatenation of Earth and Heaven: Therefore it muſt not be held totally impoſſible to make a Body turn wholly into Spirit, and reduce that Spirit again to Body; for you know, that Art applying Actives to Paſſives, may in a very ſhort time perform that, which Nature muſt be long buſied about: And becauſe that artificial Circulation which was performed in an ancient Sepulcher found out at *Padua*, doth not ill repreſent that Natural Circulation, or Circulation of Nature, whereof we have ſpoken, it will not be amiſs to inſert here in few words the hiſtory of it; *Appianus* in his Books of Antiquities, relates it thus: That in the Town of *Padua* was diſcovered a very ancient Monument, wherein, being opened, a burning Lamp was found, which had been there kindled many Ages before, as by the Inſcriptions of it did appear. This fire could not poſſibly be maintained, but by Circulation, and ſo it is eaſie to conjecture how it was done; *viz.* The Oyl ſpiritualized by the heat of the burning and kindled Taper, did condenſe it ſelf at the top, and ſo fall again into the ſame place whence it had been elevated. The Taper likely was made of Gold, *Talcum*, or *Alumen Plumeum*, which are incombuſtible; and the Urn was ſo exactly cloſed, that the leaſt particle of Oleaginous vapours could not breathe out.

Sect. III.

Of the Element of Air.

PHiloſophers have been long in doubt, whether there was an Element of *Air*, and whether that ſpace wherein Animals do move and live, was not voyd of all ſubſtance; but the invention and

and use of Bellowes, and the necessity of respiration, have at last abolisht this error. Therefore, there is no debate or difference between *Chymists* and *Peripateticks* at present, concerning the existency and place of this Element; but they agree not amongst themselves concerning its use in Nature: for these last do make the Air to bear a part in the composition of Mixt Bodies, which the former utterly reject and deny, because it never falls under their senses, in the last resolution of the Compound. The chief use which Chymists do assign to this Element, is, that it serves as Matrix to the Universal Spirit, which doth begin in it to take some bodily Idea, before it be wholly corporified in the Elements of Water and Earth, who produce Mixt Bodies, that are as fruits of the said Elements. And because we see no Element which doth not bear and produce its fruits, some have been forward to affirm, that Birds were the fruits of the Air. But this opinion is wrong and erroneous; for although these Birds be volatile, and for the most part abide in the Air, yet can they not be deprived of Commerce with the Earth, either for the necessity of generation or food: They that maintain Meteors to be the right fruits of the Air, are much more in the right, since they take in it their true Meteorick Idea.

Some do call that part of Philosophy, which concerns the knowledge of Nature, the fruits and effects of this Element, *Chormancy*, but it is corruptly, and by a mistake instead of Aeromancy; for Chormancy is something more general, and more universal: since it is the Doctrine and knowledge of the Chaos, which is to say, this great Matrix, whence all the Elements have been drawn: it is the *Tohu* and *Bohu*, or the *hyle of Cabalists*, which in Holy Scripture is called Water, where it is said, that *the Spirit of God did move upon the Waters*, or rather lay hovering over the Waters, * as a Hen doth over her Brood, *Spiritus Dei incubabat aquis.*

* So much doth import מרחפת in the Original.

But a question may here be moved, that whereas we have said above, that Elements cannot but difficultly quit their own nature to put on that of another Element, how it comes to pass, that Air is said to be the food and aliment of Fire, and that in reality it seems so necessary for its subsistance, that it perisheth

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as soon as the passage or communication of Air becomes intercepted. The answer is at hand; for as we have already shewed, the fire of our Hearths, or material fire, is not pure, the combustible matter set on fire, doth send forth abundance of vapours and fuliginous excrements, which do very much prejudice the durableness and action of it; therefore it requires still a stream of continual Air, to remove the fuliginous matter, because without it the flame should immediately be choaked; so that by this appears, how this conversion or imaginary food, is to be taken, and how much difference there is between true and false Philosophy.

Another question may be yet started, touching the use of respiration or breathing in Animals: Whether that Air which they draw in their breathing, hath any other end but meerly to refresh them, as the ordinary Philosophers do give out, only relying upon their Teachers words, without any industrious enquiry touching the truth of it, and contenting themselves to quote their Authority, as the sum and ground of all reasons: But those that look more narrowly into the nature of things, say, that there is another much more excellent and necessary use thereof, *viz.* to attract the Universal Spirit, which by the influx of the Heavens, is conveyed into the Air, where it is endowed with an Idea altogether Celestial, Spiritual, and full of vertue and efficacy; it is converted in the heart into Animal spirit, where it receives a perfect and vivifying Idea, which renders the Animal capable by its help to exercise all the functions of life: For it is this spirit contained in the Air we breath in, which subtilizeth, and maketh volatile, all the superfluities that are found both in the venal and arterial blood, the shop and matter of vital and animal spirits; and it is by the force and efficacy of this Spirit, that Nature is enabled to expell the impurities of nutriment insinuated in the last digestions, by entertaining a continual transpiration through the pores. This appears even in the Plants, though very obscurely: for although they be deprived of Lungs, or any other material Instrument, for the performance of respiration; yet have they something Analogous to it, which is their Magnetisme, by which they draw that Spirit residing in the Air, without which they could not perform their natural Operations, as to nourish

nourish themselves, increase, produce their like, &c. Which manifestly doth appear when they are buried too deep in the ground, and by this means deprived from that vivifying Spirit, by which they are animated, for they immediately die as if they were suffocated.

Sect. IV.

Of the Element of Water.

THE most learned and perspicacious Philosophers amongst the Ancients, have been of opinion, that Water was the first Principle of all things; because it could in their apprehension, by its rarefaction or condensation, produce the other Elements. But as we have heretofore declared this mutual change to be impossible, so must we have our recourse to another way of Philophy. We shall not here consider Water, as being a constitutive Principle in the Composition of the Mixt; for in this sense we have already spoken of it, where we have treated of Phlegm: But we shall speak of it as of a vast Element, concurring to the frame of this Universe, and containing in it self many particular Matrixes, which produce a fair and pleasing variety of fruits: First of Animals, *viz.* Fishes, and all sorts of Water-Insects: Secondly, Vegetables, as the herb called *Ducks-meat*, which hath her root implanted in the Water it self: And finally, Minerals, as Shells, Pearls, and Salt, which is abundantly through Creeks and secret pores conveyed into the Earth, to advance the production of her own fruits. The Water then is the second general Matrix, where the Universal Spirit takes the Idea of Salt, communicated by the Air, which did receive it from the Light, and the Heavens, for the production of all sublunary things. *Paracelsus* calls the knowledge of this Philosophy of Water, *Hydromancy*.

Sect. V.

Of the Element of Earth.

IN the laſt Section of the foregoing Chapter, we have ſpoken of the Earth, as a Principle partly conſtituting the mixture of the body, and found after its laſt reſolution; but in this Section we treat of it, as of the fourth and laſt Element of this Univerſe.

The Earth in this reſpect is, as it were, the Center of the World, in which all its vertues, proprieties and faculties are united; it ſeemeth even that all the other Elements were created for the uſe and benefit of the Earth, for all what is in them more precious, ſeemeth to be intended for its ſervice. Thus the Orbs of Heaven are inceſſantly whirled about, to ſupply all the parts of it with vital ſpirit, and for the maintaining as it were, and recruiting the daily expences of its Family: The Air is in a perpetual motion, to penetrate her deepeſt bowels, and that to the ſame end, *viz.* to furniſh her with the ſame vital ſpirit; and the Water is never at reſt, running continually to communicate to her that which the Air hath beſtowed upon him: So that all the World ſeemeth to be concerned for the Earth, and the Earth only for her Fruits, which are her Children, ſhe being the Mother of all things. It ſeemeth even that the Univerſal Spirit, loves the Earth above any other of the Elements, ſince it deſcends from the higheſt part of Heaven, where it is in its exaltation, to corporifie it ſelf, or take a bodily ſhape here on Earth. Now the firſt Body which the Univerſal Spirit doth take, is that of *Hermaphroditical Salt*, whereof we have ſpoken above, which contains generally in it ſelf all the Principles of life: it is not deprived of Sulphur nor Mercury, for it is the ſeed of all things, which takes afterwards a body, and the Idea or *taliety* of Mixts, by help of the characters of particular Matrixes or Wombs, incloſed in the body of this great Element: If it meets with a Vitriolick Matrix, it turns it ſelf to Vitriol; if with Sulphur, it becomes Sulphur, and ſo of the reſt, and that by the vertue and efficacy of ſeveral natural fermentations: In a Vegetable Matrix, it becomes Plant; in a Mineral, Stone, Mineral, Metal; in an Animal, whether living or not living, it produces an Animal, as it is dai-

daily seen in the generation of such creatures as are produced by the corruption of some Animal, or other Mixt; as for Example, Bees generated out of young Bulls flesh, and Worms out of the corruption of several Fruits: Now as there are a great many differences of Mixts, so is there a great variety of particular Matrixes, which often causeth a transplantation in all things; but this matter belongeth rather to *Chymical Philosophy* then to this place, where having no time to particularize, we do treat of things only in a general way. The knowledge of that part of Philosophy which concerns this Element and its fruits, is called *Geomancy*. By it we are made capable of knowing the operations of Nature, both in its very bowels and the surface: Her fruits are the Animals, Vegetables and Minerals; and if these Mixts are composed of the purest vital Principles, then according to their proper nature and condition, will they be lasting, and will attain the end of their natural predestination (or destiny) if some external and occasional cause doth not interrupt that progress, and stop them in their Career: But when *Chance* (or *Fortune*) mixes in their first Composition or Nourishment, any of the Principles of Death or Destruction, they cannot long subsist, neither end their intended course by Nature; because these Domestical Foes do incessantly devour and consume them, as we shall make appear, when we come hereafter to speak of *Purity and Impurity*. But before we enter into that matter, something must be said of the *Principles of Death or Destruction*.

Chap. V.

Of the Principles of Destruction.

Sect. I.

Of the Order of Matters treated in this Chapter.

HAving to treat of *Purity and Impurity*, in the second Book, which shall immediately follow this Chapter, and the Principles of Death being in a manner contained under this matter; I found it not out of purpose, to close this first Book

by a short Discourse upon these Principles, although to speak properly, they should not be called by this name; for it is proper to the nature of Principles ever to compound or generate, but never to destroy.

We have shewed heretofore, that Principles may be considered three several wayes, *viz.* Either before the composition of the Mixt, or in the state of its composition, or finally after dissolution and destruction: We may say the same here touching the Principles of Death, which we have already said in another place concerning the *Principles of Life.* But because Contraries opposed one to the other, are better apprehended and illustrated, we shall say something again concerning the Principles of Life before the composition of the Mixt, that we may the better come to the knowledge of the Principles of Death, when we shall speak of it in the third Section; for we shall referre our selves to speak of their effects, being already corporified or embodyed in Mixts, when we come to treat of *Purity and Impurity.*

Sect. II.

Of the Principles of Life before Composition.

WE have often said above, that the Universal Spirit being indifferent to be made all things, is undetermined to any particular subject, unless by the character of particular Matrixes; and because each Element is filled with these particular Matrixes or Wombs, as we have already proved, each Element doth contribut something of his own for the perfection of its Composite. The Heaven doth by the assistance of his Stars, communicate unto it her heavenly, spiritual, and invisible vertue, which descends first into the Air, where it beginneth to assume a kinde of body; the Air sends it into the Water or the Earth, where this cœlestial vertue and influence beginneth to operate more materially, and associate it self to matter, thereby to frame a body to it self, by means of those various natural fermentations which are the cause of alteration in sublunary things: because this Spirit is the true Agent, and the true efficient internal cause of these fermentations performed in the Matter, which of it self is meerly passive, and

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the *Archeus* or director general of it: For when it is Mixt and united to the body, which clotheth it as it were, or involves it under its rinde, it can neither produce nor manifest those wonderfull effects which it hides and conceals, being then as it were fettered and imprisoned; and shall never be able to exercise or shew his virtues, unless it be first disintangled of its corporeity, and grossenes of the matter; and this is the main point upon which Chymistry bestowes so much labour, care and study, to bring unto light those lovely Truths, which this part of natural knowledge doth contain.

Now as this Universal Spirit is the first Principle of all things, and that all things are produced by it, and return into the same, it is evident, that it must by necessity prove also the first Principle or Original of death in all things, which doth imply no contradiction, since it is done and understood in several respects; for as the variety of Compounds in Nature, doth require for its maintenance a variety of substances: There is also a variety of Matrixes or Wombs in the Elements, to attend the fabrick of those various substances, and thence it is that what doth oftentimes advance the life of one, is the destruction and death of the other; as for Example: A corrosive Principle will be the death of a sweet Mixt; and contrarywise, a sweet Principle the death of a corrolive, by taking away its acrimony and sharpnes, which did constitute its essence and differency.

But to speak strictly and properly, it appears, that this first Principle, thus and thus Ideified, cannot be said to be a Principle of Life or Death: This expression can hold but in a respective consideration, and as it relates to this or that Compound; but as the most part of sweet things do contribute to the service and preservation of Mankind, because they have some correspondency with his taste, and participate more of substances analogous to his Nature and Constitution: Hence it comes to pass, that when the Universal Spirit hath received this stamp or character, it takes the denomination of *Principle of Life*; as to the contrary that of *Death*, if it be stampt with a corrosive Idea, which not only prejudiceth to the actions of man, but corrupts also those of such Mixts and Substances as serve for his daily food and subsistance.

So when the Air is filled with Arsenical vapours, and Realgarick and Corrosive Influences, which by reason of the necessary use of respiration, are often the cause of great mortality amongst Mankinde; yet considering that those destructive spirits are not influenced to that end, and that their ill effects, as to Man, are only accidental; so can they not properly be called Principles of Death, since they are dispensed here below by the care of Nature, for the generation and propagation of Arsenical Substances, Realgars, and other corrosive mixt Compounds, which are no ess a part of the World then Man it self, and are destinated to a better end, by the hand of the all-wise Master and Creator of this Universe, then is known unto most of us; for we see that Nature and Art can so order and prepare these Mixts, as to make them fit and serviceable for the use of Man: We must not therefore presently call Nature a Step-mother to us, since God hath endowed us with the skill and means, to avoid these evil and malignant influencies. To accommodate our selves then, to the vulgar way of expression, we shall say, that the Principles of Life, before the Composition of the Mixt, are nothing else but the Universal Spirit, impregnated with the Idea of favourable and amicable Principles to our Nature, and possessing in the Center of its *Hermaphroditical Salt*, a moderate Sulphur, a temperate Mercury, and a sweet Salt: as to the contrary, the Principles of Death are nothing else but this same Spirit, having in it the same *Hermaphroditical Salt* mixt with a sharp Sulphur, a biting Mercury, and a corrosive Salt, as we shall more fully declare in the following Section.

Sect. III.

Of the Principles of Death.

I Must, before I do proceed further, repeat once more here, that when we call these, *Principles against Nature*, we understand not Nature in a general term; but only humane Nature: because it happens often, that what is Poyson to one *species*, shall be nourishment to the other: so doth Hen-bane please to Storns, which feed upon it; and killeth Man.

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This ground being layd, I say, that all heat, or rather all hot, corrosive, biting, sharp substance, which destroyes and consumes, is such, because it contains in it self a Sulphur against Nature; and that from this Sulphur it is, that as from their Spring, do flow all the vertues and proprietyes of the Mixt, where that impure Sulphur is predominant: for if Life doth flow from a sweet, natural and vital Sulphur, and that it receives a long preservation by the essential proprietyes of this Sulphur, it must necessarily be concluded, that death and destruction must follow that Sulphur which is of an opposite nature unto it; and all Arsenicks, Realgar, Auripigment, or Lead-oar, Sandarack, and all other venoms of a hot, fiery nature, whether *celestial, aerial, watery, terrestrial,* all these Poysons, I say, are such by their very actions, and sole propriety of this Sulphur against Nature.

It is not our design to speak here of those Principles which are enemies and contrary to humane nature when they are already incorporated, and do compose some of the venemous Mixts, because we referre our selves to treat of it in the Book following; we shall only speak of these Principles here, as they are yet *spiritual*, & flowing from the Stars; by the mediation of the Universal Spirit, and as this Principle is single in this respect, so hath it received these several and different denominations: for as we have already said, that the Sulphur, which is heat, cannot be without Mercury, that is to say, *moysture*; neither without Salt, by reason of their mutual union, it followeth from thence, that a biting Mercury, and corrosive and caustick Salt is required to the subsistance of a sharp Sulphur; as likewise a temperate Mercury and sweet Salt is required for the preservation of a moderate Sulphur. For these three Principles are ever united and joyned very strictly together, whether considered as Principles of *life*, or Principles of *death*; and if sometimes we treat of them separately, it is to the end only that their operations and nature may be better understood; because there is still one of these Principles predominant above the others in the Compound, and whose actions are made manifest, concealing and blunting the efficacy and vertues of the two other, though notwithstanding they act by way of Concomitancy, with that which predominates; as for Example: When the Mercury of Death operates the Sulphur against Nature, and corrosive Salt does not cease from

from their action, though it appears but little, by reason of the predominant Principle, for *à potiori sumitur denominatio.*

Now as the Sulphur of Death, or Mortal Sulphur, doth manifest it self in the Arsenical substances, *Realgar*, *Auripigment*, &c. the Mercury of Death doth also the same in all *Narcoticks*, and we have not without reason affirmed these poysons to be, not only *terrestrial*, but *aërial* also; for in all the Elements there is much of this malignant Mercury, not yet specified in any individual Body, but flying up and down, and remaining of a volatile nature; and whensoever it exceeds proportion, doth cause an infinite number of Epidemical, Pestilential, and Contagious Diseases; and if the individual venoms already immersed in Bodies did not attract it for their nourishment, it would infallibly, cause a great spoyl and disorder in the World.

And as Salt is the Principle which causes the coalescency of substances in Bodies, or corporification (if we may use the word) and that by it Sulphur and Mercury are made visible and palpable, by reason of the coalition of the same which it causes; so the corroding Salt, doth also corporifie the two other Principles of Death, and renders them visible by giving them a Body; for these substances otherwise should remain invisible in the Universal Spirit, were they not brought to light, and made corporeal by the operation and help of the Salt, and by this means it is, we finde true, that so important Axiom of the great *Trismegist*, when he saith, that *Quod est occultum fit manifestum, et vice versâ.* The violence and hurtfull nature of this Salt of Death, appears very little in natural things; but when Art hath bestowed its skill, upon one or several Mixts, then appears its activity, and not before, as is obvious in all sublimated Corrosives, *Aqua Fortis*, Butter of Antimony, and several other Preparations, of this nature, known to the Sons of Art, it is from such a kinde of Salt, that Cancers, Gangrenes, Kings-evil, and all other corroding Ulcers are generated in mans body; which is against the sense of those, who do impute to sharp and biting humours, the cause of these Diseases, having but Chymical notions of knowledge in natural things, as we shall shew in the next Book, where we shall declare which way the Principles of Death do incorporate themselves in Man.

THE

The Second Book OF The First Part.

Of Purity and Impurity.

CHAP. I.

What is Purity and Impurity.

THE words *pure* and *impure*, may be taken several wayes; for some by *Purity* understand what is usefull and profitable to Mans Nature, and by *Impurity* what is hurtfull and damageable to it: Others will have that to be *purity* which is *homogeneous*, and all *heterogeneous* substances to be *impurity*; but it may so happen sometimes, that Heterogeneous substances shall be profitable, and the Homogeneous hurtfull. Thence it may be gathered, that nothing can be said either *pure* or *impure*, absolutely speaking, but only comparatively, and in respect of one thing to another: For as we have already said above, it may happen, that what shall offend the one, shall help the other; as for Example: Should it not be thought a very great absurdity to believe, that the bones

of Animals should be impure, because men do not eat them, and that their Flesh only should deserve the appellation of *pure*, because men feed upon it with pleasure, though the same bones be so absolutely necessary to the perfection of Animals, that without them they should not be what they are, since Bones are the solidest part of their substance.

We shall not take here *purity* and *impurity* in this sense: but by *purity* we will understand, all what in the Mixt or Compound can be found to serve our end and purpose; as to the contrary, by *impurity* all what oppoſeth it self and contradicts to our intention in the work: For though in Mixts Bodies there be many parts hurtfull to mans nature, yet if we speak absolutely or respectively, in reference to the same Mixt, the parts of its Compound cannot be said *impure*, since they are of the essence of it, and do constitute his integrality: Moreover these parts cannot be damageable to man, but conditionally, since nothing compells him, but his own will to make use of it.

Purity and *Impurity* are in this sense considered, either in man, or out of him. The *impurity* found in man doth hinder and disturb his and Natures intention, which is, that without interruption, he might enjoy a full and entire health: The same doth it also out of him, since we suppose that it must necessarily enter and penetrate in him: But this is the difference between these two kinde of Impurities; that *inward impurity* doth all immediately by its presence, and the other is only considered as remote and absent, though it is to be neerer at hand, at some time or other. Because, as there is a necessity for man to breathe, and receive daily food; so can he not avoid the action of that *impurity* wherewith the Air and Elements are sometimes impregnated, as hereafter we will make it appear, and demonstrate also that in those substances which by some are accounted *pure*, there doth yet remain intermixed abundance of impurity.

CHAP.

Chap. II.

How Purity *and* Impurity *are mixt in all the Compounds of Nature.*

THere is in every Mixt a Salt, Sulphur, and Mercury, proper to its nature, as we have already said above: Now all Mixt perfectly framed, is either Animal, Vegetable or Mineral. Whence we gather, that as the one is the food of the other, as it appears by the mutation of Minerals into Vegetables, and of Vegetables into Animals, and again from Animals into Vegetables and Minerals; so is there in every Mixt, a Salt Sulphur and Mercury, Animal, Vegetable, and Mineral, imparted to them by the Universal Spirit; for all what receives nutriment receiveth it by its like, and what is dissimilary, is expelled as an Excrement: and if the expelling faculty is not vigorous and strong enough for this purpose, there remains many Excrements in the Compounds, which occasions many Mineral Diseases in mans body, altogether unknown to vulgar Physick, and consequently out of the reach of her Methodical Remedies and Prescriptions.

This which I say here, cometh to pass in this manner: When the food is received into mans body, & digestion hath separated the several parts of Mixts, which contribute to its nourishment; each part doth attract out of this food, and the Animal Principles therein, that which is most proper and Analogous to its nature. But as for those other Principles, which cannot be assimilated to our substance, and are no staffe of our lives, Nature doth expell them by the ministery of that faculty which is dedicated to such an Office: But if this faculty be oppressed or debilitated, by some accidental and external cause, or by some internal disorder of our *Archeus*, which is the guide and director of our life and health; then do these Excrements coagulate themselves, or turn volatile, according to the Idea which the natural fermentation vitiated by this accidental disorder, imprints on them; and by this defect

are all the Mines of Diseases bred and generated in us. Whence it cometh to pass, that such Diseases cannot be mastered nor expelled, but only by such as are first very well acquainted with the nature and vice of the Ferment; and secondly, with the proper and specifical remedy, which can restore our Nature, and appease those irritations of Spirits, which are caused for the most part by a preposterous or corrupt fermentation. For if the ferment be of a *coagulative* nature, it is necessary we be acquainted with some specifick dissolvement, which should not prejudice the Ventricle: but if it be such a dissolvement, as will make an evil colliquation of the nutriment and parts; he that will undertake the Cure with success, must know what remedy is capable to repair that fault in Nature, and reform its disorder. Thence proceed the reiterated fits in Feavours, and their continuance often, notwithstanding the administration of many remedies, which cannot stop their raging fury, because we are for the most part ignorant in the effects of good or bad fermentation.

If our leasure would give us leave to enlarge here upon several noble and curious inquiries, we should be taught by this Philosophy the causes of several effects, altogether unknown to most men. I will give a touch only by the by, for a proof of it, upon this Question ordinarily moved: *Wherefore Men before the Flood were much stronger and long-lived without comparison, then after that general inundation of the World?* Two reasons of this effect and wonderfull change we can give, according to the Doctrine layd already before: The first, that as the world stood then in the beginning, there was yet no change or alteration in the nature of things; which happened since, only by the several mixtures and changes introduced in the Compounds of Nature, after the deserved Curse inflicted upon sin. The second, that the Waters, which are the general Matrixes or Wombs of several Minerals, and particularly of Salts, had not yet covered all the Earth, neither by consequence communicated the Mineral seeds, to feed the Family of Vegetables, whose vertue is thereby become vitiated, and their first nature in a manner altered: Whence the Animals Family hath been made partaker of this defect, because it drawes its food and sustenance almost from Vegetables; as this chiefly appears in the Vine, which abounds in Tartar, which

which is its proper Salt: Now, that Tartar is a kinde of Mineral, appears by its action, working potently upon Minerals, and with great efficacy upon Metals; for, *all natural action is performed by its like*, and there is a proportion required between the Agent and Patient. But to avoyd here multiplying objections, I understand here by this Proportion only a generical similitude.

These things thus premised, 'twill not be very difficult to conceive what is here properly understood by *impurity, viz.* That they are Principles of an Heterogeneous and different nature, mixt with other Principles, not of the same *Family* nor *Category*: As when Minerals become by some way or other, united to Vegetables or Animals: It is also very easie to observe, how *Purity* insinuates it self in all things, by taking the opposite or contre-part of what we have said of *Impurity*. But now will it be necessary to shew, how *impurity* may be severed or banished, since it is a Principle of Death and Destruction, as *purity* a Principle of Life, as we have said here above.

CHAP. III.

How the Impurity of all things is to be separated.

WEE have said *impurity* to be that which could interrupt the perfection of those actions, which do conduct the Mixt to the end of its natural predestination: It is then very requisite to know, how it may be freed from this domestick enemy, which insensibly doth creep into the Compounds. Now as all Mixts are under several genders, and differing *species*, and that there is several sorts of *impurities*, men have invented several Arts to correct and take them away: and as the Art of Chymistry hath all the things of Nature in general for her object, so doth it endeavour to shew how they may be freed and extricated from their *impurities*: But because, to particularize all the parts of this doctrine, would extend beyond the limits of a Compendious Treatise, as this we do intend; we shall

content our selves to speak only of those Impurities, which use to happen in Chymical Operations: For, to handle any part of Physical Chymistry or *Iatrochimy*, is not here our design, since it could alone fill many Volumes. You are to note only by the by, that there is two several wayes of removing the *impurity* of things; the first *universal*, the other *particular*: The first is an universal medicine, which is or may be extracted from several subjects, after they have been, as much as Art can perform it, reduced to their Universality, and devested of their specification and natural fermentation, which caused them to be this or that determinate Mixt: For this Medicine being by a fit digestion, and requisite coction and maturation, reduced to the highest degree of its exaltation; it is sufficient to expell *impurity* out of all Bodies indifferently, because it insensibly consumes it, both by the help of Fixation and Volatilization. The second is a particular Medicine, which by its specifical vertue and faculty, may expell particular *impurities*: A thing of no small importance, and whose secret is not to be attained unto but by the true Sons of Art; and those which do joyn together manual Operation and diligent Practice to an indefatigable study, which do use and bring to the *Examen* of Tracts the weight of their reason, and never venture their Remedies upon sick Patients, unless grounded upon the infallible Theorems of the noblest Philosophy, and the truest Physick.

To return then to our Operations, we have said above, that by the ministery of fire, the Artist did separate from each Compound, five Substances or differing Principles, which though very *pure* in themselves, yet in several respects may have their *impurities*, either in respect to themselves, or in respect to our intention: For if we have occasion to use only the Spirit extracted out of a Mixt, and that this Spirit be joyned with some portion of the Phlegm of it, we shall say this Spirit to be *impure* in such a respect, and so of the other Principles. Now concerning the particular way of separating these kinde of *impurities*, we shall treat of it in the following Book, but particularly in the first Chapter of the last Book, to which we referre the Reader.

CHAP.

Chap. IV.

Of the Pure Substances extracted out of Mixts.

Besides the five Substances or Principles, which we have formerly said may be extracted out of natural Compounds, by the ministery of fire; there may be yet some Essences drawn, by diversifying the Operations of Art, which exalts, and do ennoble the Principles of these Mixts, and raise it to their *purity*. These Essences do not only differ in body, from that of the Compound whence they were extracted, but are advanced also to nobler and more efficacious qualities and vertues, than those which during it's intireness did adorn their bodies, and after its dissolution and artificial separation, will possess more then any of the Principles of the Compound. But though these wonderfull Essences obtain several names in the Books of Philosophers, who call them *Arcana's*, *Magisteries*, *Elixirs*, *Tinctures*, *Panacea's*, *Specifical Extracts*, &c. they are comprehended nevertheless, under the general notion of *pure* and *purity*; and it proceeds from hence, that after those Essences are drawn out of their Mixts, the remainder is commonly rejected as *impure*. *Paracelsus* in his first Book of *Archidoxa's*, saith, that the six following Preparations, *viz. Essences*, *Arcana's*, *Elixirs*, *Specificks*, *Tinctures*, *Extracts*, are contained in the mystery of Nature, which he calls *Purity*, and that with a learned alluſion to the *Greek* word πῦρ, which signifies *fire*; thereby insinuating, that these Essences are brought neer and assimilated to their first Principle, which is of the nature of Fire, since Light it self, which is but Fire, is the first Principle of all things: In the same place, he calleth also the Body *Impurity*, which keepeth in Prison this mystery: and therefore saith, that he that will enjoy this mystery, must devest it of all Corporeity, as it shall appear in the second part of this Treatise. But it is here to be noted, that when *Paracelsus* saith, that this mystery must be devested of its body, he means only that it must be freed of that gross body wherein it is imprisoned, to impart him a more subtle one;

which

which he may shake off with ease, and spiritualize himself, to be the more capable thereby to penetrate into our last digestions, and there correct all those defects which *impurity* might have caused. This mystery sometimes is extracted out of one sole Mixt, as *Magisteries* are done; sometimes of several Compounds, as *Elixirs*, which will appear more plainly hereunder.

But it will not be from our purpose, to treat succinctly of Compounds, either perfect or imperfect, and their variety, because we have already much spoken of it in this Treatise, and are to speak yet more; considering likewise that these Mixts are the subject and matter of Chymical Operations, and further, that it may serve as a common and peculiar place of Physick, where he that will rightly be informed, to what *Category* each Body doth belong, may have his recourse: We shall then handle in this last Chapter of this Book, *the natural generation and corruption of Bodies, and their variety.*

Chap. V.

Of the Natural Generation and Corruption of Mixts, and their variety.

Sect. I.

Of the Order of this Chapter.

Before we can well understand the nature of Mixts and Mixtion, and apprehend clearly how *purity* or *impurity* bear a part in their generation, we must know well before-hand, what Alteration is; and thence consequently inform our selves touching the nature of Generation and Corruption. Therefore it will be apposite, to say succinctly something of Alteration, Generation, Corruption, and Mixtion, before we enumerate more particularly the Mixts, either perfect or imperfect, which are the fruits of Nature, and by consequence the subject of its Operations.

Sect.

Sect. II.

Of the Alteration, Generation and Corruption of Natural things.

IF you will insist upon the Etymology of the word *Alteration*, you shall finde it to be nothing else but, *A motion by which any subject is made different from what it was before*: Or thus, It is a motion by which a subject is accidentarily altered according to its qualities. In this, Alteration differs from Generation; for Generation is an essential and substantial change, and Alteration is only an accidental motion of the qualities of a Body: And further, Alteration is only a disposition and preparatory way towards Generation and Corruption: and thence it comes to pass, that there are two kindes of Alteration; the one perfecting the Body or Substance, the other destructive of it. In perfective Alteration, all the qualities observe a just temper of proportion, and an equal harmony, according to the nature of their subject, and in order either to preserve the same nature, or assume a more perfect one. But in the destructive or putrefactive Alteration, all qualities fall into that disorder, that they plainly remove their subject from its natural constitution, as it often happens in fluid bodies, abounding with great store of Phlegm; and is seen by Example in Wine, when it begins to corrupt, and grow flat.

This is then the difference between Alteration and Generation, that Alteration introduceth no substantial form into its subject; but that which is substance in the subject, receives only some adventitious quality which it had not before; as for Example, when *heat* or *cold* are generated in any Plant or Animal. But Generation is a change of substance; which presupposes not only the production of new qualities in the Subject, but of new substantial forms also: as when out of Bread Blood is engendred, the subject or matter of this Bread is not only deprived of the quality of Bread, but also of its substantial and essential form, to take the form and quality of Blood: Yet are you to note, that a question upon this may be raised, though not wanting its Answer, *viz.*

That when some Physical Herb is prescribed to a Nurse to feed upon, that the vertue of this Herb may pass into her Milk, whether it be the same numerical quality which was in the Herb, that is now found in the Milk? The Answer is negative; though it be the same specifical, or rather generical: For as the Milk and the Plant do generically differ, the difference of their quality should also be altogether generical. But to speak of these things more intelligibly, we say with *Van Helmont*, that the vertue of the Plant was inclosed in its Median or Intrinsecal Life, which is neither altered nor corrupted by the Nurses digestions, and so is conveyed into her milk, setting aside the ordinary Quiblets and Niceties of Schools, which usually raise more doubts, then they can establish truths in Physick and Philosophy. Hence you may learn, how the Generation of one thing is the Corruption of the other: and contrary-wise, the Corruption maketh the Generation. Therefore we will say no more of Corruption, because whosoever shall understand the one, cannot be ignorant in the other: We will only succinctly shew, wherein Generation and Corruption, do differ from Creation, Destruction or Annihilation. The difference then lyes in this, that Generation and Corruption do presuppose a matter, which must be the subject of the several forms introduced into it. But Creation and Destruction require no matter; for as the one is the production of something out of nothing, so is reciprocally Annihilating performed but upon created things. Generation and Corruption are natural motions, proceeding from a second and finite cause: but Creation and Destruction or Annihilation, can only be the work of an Omnipotent hand, and infinite Cause; the distance between being and not being, something and nothing, being infinite.

These things thus cleared, we come to Mixtion, which is twofold, *viz.* the one so called improperly, which is artificial; the other proper and natural. That improperly called, is but a local approximation of Bodies differing in Nature, confusedly joyned together, so an heap of Corn is improperly called Mixt; this Artificial mixture, in which the parts are really mixt together, but without change or alteration of the whole substance, is yet double, *viz.* that which is made by *apposition*, and that which is by *confusion* of the parts: Apposition is made, when the things mixt

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together, are divided in parcels scarce perceptible to the eye, as when the particles of Wheat and Barley mixt in a heap, are mingled in the same mass of Flower: Confusion is, when the mixt parcels are not only imperceptibly divided, but also so confounded together, that they cannot easily be separated again, as when Water and Wine are mixed together, and Apothecaryes mix their Druggs, which remain so confounded, that none can be longer discerned.

Natural mixture properly so said, is a strict union of the substances, whence some things substantial doth result, and yet different from the other Substances which constitute it, by the help of Alteration: For by the conjunction of the Principles, a Mixt is generated, whose principal form differs from that of its own Principles, as it is made more manifest in the dissolution of the Mixt, according to the *Peripatetical* Axiom, which saith that, *Quod est ultimum in resolutione, id fuit primum in compositione.* This Alteration, which causeth Unition to lead Nature to Union, and thence to Mixtion, hath been already illustrated, where we have spoken of the conjunction of Salt and Spirit, and the action of Phlegm and Sulphur, which overcome the sharpness and sowerness of Salt and Mercury; and when we have said, that the Earth imparts solidity and body to these several Substances; it is by the means of this Alteration, this union and conjunction, that the natural Compound is framed and produced. And if it be objected, that these Principles are rather a work of Art then Nature, your recourse shall be for answer, to what we have already said in the first Section of the first Chapter of the first Book.

Sect. III.

Of the differency of Mixts in general.

HAving sufficiently discoursed at large of those single, pure and homogeneous Substances, which we have called Principles; and having illustrated their various alterations before their union and mixtion, which maketh up the perfecting of the Compound: it followeth we should speak of such Mixts as are resulting from this action. All Mixts are perfectly or imperfectly compounded,

according to the ſtrength or weakneſs of their Principles union. The Body, which is imperfectly compounded, hath only a light coagulation of ſome of the Principles, and not very laſting, neither differenced by ſome principal, ſubſtantial form, which ſhould make it eſſentially to differ from its Principles; as for Example, Ice or Snow, which only differ from Water by adjunction of ſome foraign and adventitious qualities: But the Perfect Mixt is that, which is endowed with a ſubſtantial principal form, diſtinguiſhed from the Principles whereof it is compounded, after their perfect union, and for this reaſon alſo is more laſting; ſuch are all Minerals, Vegetables, and Animals.

Thoſe Bodies which are imperfectly compounded, are called *Meteors*, and their difference is great, according to the difference and variety of the Principles which abound in them; for ſome are Sulphureous, others Nitrous, others Aqueous, and ſo of the reſt; of theſe we muſt ſay ſomething, before we ſpeak further of perfectly compounded Mixts: and herein will we imitate the proceſs of Nature in her workmanſhip, which never produceth any perfect Mixt, before her Principles have paſſed through Meteorick Nature, as we ſhall explain hereafter: her method being, never to paſs from one extremity to the other without a mean. Meteors are called (ſometimes) perfectly mixt Bodies, not becauſe the nature and form of Mixts is in them, but becauſe, although they preſerve in a manner the nature of Principles, yet they differ in ſome kinde from the natural ſtate of thoſe Principles; which is the reaſon they are aſſigned a middle condition and nature, between that of pure and unmixt Principles, and Bodies perfectly compounded of them: they are alſo imperfect Mixts, by reaſon of their ſudden generation, and diſſolution: For as the mixture and coagulation of the Principles in thoſe Bodies is imperfect, ſo can they neither be of duration; but are eaſily converted into the nature of the Principle moſt predominant in them. The material, remote cauſe of theſe imperfect Mixts or Meteors, are the Principles; and the *proxime* or immediate, thoſe fumes and Spirits, into which by the vertue of ſome efficient cauſe, the ſame Principles are turned by volatiſation and ſpiritualization. But you are to note here, that there is two different kindes of Fumes and Spirits, *viz.* Vapours

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and Exhalations; Vapour is a hot and moist Fume, and consequently proceeding from Phlegm, if it prove Aqueous; from Oyl or Sulphur, if inflamable; or Mercury, if windy and spirituous. Exhalation is a hot and dry Fume, and by consequence generated from a terrestrious and earthly Body, and a Principle of Salt: It must also be noted, that the Vapour is said to be hot and moyst, because Water converted into Vapour, is elevated by the action of Fire which is insinuated in it, and for this cause (by a *Greek* expression μετέωρος) is called Meteor, or a body imperfectly composed of some Principles. And concerning the Doctrine of Meteors in particular, they that will be exactly informed, must repair to such Authors as have professedly handled this Doctrine: For it would engage us beyond the bounds which we have limited to this our short Chymical Abbreviate in our Preface, if we should undertake that matter here at large.

Sect. IV.

Of the Diversity of Perfect Mixts.

HAving shewed, that Nature ever aims at the corporifying and spiritualizing Mixts and their Principles, by the assistance of the Universal Spirit, and the vertue and character of particular Matrixes or Wombs, and that wrought by the operation of the Ferment, and impression of the Idea once received: We must also now turn our discourse to those Mixts, which are as we have already often said, generated by the Universal Spirit only, cloathed under some Meteorical Idea; as that appears in the resolution of Metals and other Minerals, which are converted into Fumes and Exhalations, before they escape our sight, to re-unite themselves to the Universal Spirit; whence we gather, that they must have observed the same degrees of production, in their generation, corporification and coagulation.

The perfectly compounded Body, is animated or inanimated; the animated Mixt, is that which is adorned with a soul, or vivifying form, as Plants, Beasts, and Men; as contrarywise, the inanimate Mixt is that which is deprived of all appearance of life, which doth consist in sense and motion.

But a Question is here raised, *Whether Minerals are animated or no?* To which, without mentioning here the vulgar School-Arguments, to avoid tediousness, we answer, That though in these Bodies, which are fruits of the Earths Center, we cannot so easily perceive those manifest vital Operations, which are obvious in Plants and Animals, yet nevertheless are they not altogether deprived thereof; since they are multiplyed by a constant perpetuity; which moves us to say, that as they have a multiplicative form of their own *species*, so must they be endowed with life. Some of the ancient Philosophers have acknowledged this Life, as when *Pliny* saith, *lib.* 3. *c.* 10. *Spumam Nitri fieri, cum ros cecidisset, prægnantibus intrariis, sed non parientibus.* Let us then conclude, that Minerals do live, as long as they are joyned to their Matrix and Root, since they grow there sensibly; but when they are separated from it, they are justly called *Inanimate Mixts*; as we may rightly call *dead*, the stock or body of a Tree separated from its root. In this sense we shall from henceforth term them, as also many other substances, though taken from Animate Bodies: In this manner, we say, there are two kindes of Inanimate Bodies, the one extracted from the Earth, the other from the Mixts themselves, either animate or inanimate: those which are extracted from the bowels of the Earth, are called Minerals, whereof there are three *species*, *viz.* Metals, Stones, and middle Minerals, which are also called *Marcassites*.

Metal is a Mixt, extending it self under the Hammer, and melting in the fire. *Marcassites* are fusible, but extend not under the Hammer: and Stones are neither fusible nor extensible.

As for those Mixts which are not digged out of the Earth, human Art hath found a way to draw them ordinarily out of animated bodyes, such are Fruits, Seeds, Roots, Gums, Rosins, Wooll, Cotton, Oyl, Wine, and several other substances extracted and separated as parts of Animals and Vegetables, no more considered as Organical, whose Animals are also made use of (in Chymical Operations) when they are deprived of their life and soul. Of all these mixt substances, as much animated as inanimated, shall we treat in the following Sections.

Sect.

Sect. V.

Of middle Minerals or Marcasites.

Middle Minerals are *Fossiles* of a middle nature, between Metals and Stones; and partaking in something of the essence of both: For by their fusion they agree with Metals; and with Stones, in their brickle and crumbling nature. Middle Minerals are for the most part Metallick Juices, dissolved or condensed, or else Metallick and Mineral Earths.

The principal *Metallick Juices* are, First, *Salt*, which is a body easily crumbled, dissolving it self in moysture and coagulating in drought: whence it is evident, that the predominant and abounding Principle in this Mixt is Salt, whence it borrowes its denomination, and because it is a Mixt, thence it followes, that it is not destituted of other Principles, as it appears by the action of fire upon it, and its Spagirical Anatomy.

Salts are either natural or artificial: Nature produceth the first kinde, which are called *Fossile Salts*; Art doth make the other, of which therefore several *species* are found; as for Example, *Sal gem.* Armoniack, Saltpeter or Nitre, Well or Pit-salt, Sea-salt, Fountain-salt, Aloms, Vitriol or Copporas, which all are endowed with specifical qualities differing the one from the other, according to the nature of their predominant Principles, which are either fixt or volatile, dissolving or coagulating, as may be seen by the diversity of Operations which may be performed upon each kinde of these Salts.

Bituminous Substances follow Salts, and comprehend several various kindes, as *Asphaltum*, Amber yellow or *gris*, Camphire, *Naptha*, Petroly, and Brimstone, which we difference from the Sulphur as it is a Principle in all things: For this is but a fat and stinking Mineral Juice, having in it self a subtile, inflamable part, and another terrestrious and Vitriolick, by which he soon destroyes Metals, and will soon be extinguished if Vitriol doth abound in it. This Brimstone is either quick (*Sulphur vivum* in the Shops) that is, such as when it is drawn out of the Earth, and never felt the fire; or prepared by Art, and refined by Fire,

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as we have it in Cakes from the Druggist. Several various Remedies usefull in Physick, are by the help of Art extracted out of these Bituminous bodies; as we will more particulary declare in the last Book of the Second part of this Chymical Treatise.

Arsenick is either Natural or Artificial; the natural is of three kindes, *Auripigment* or *Litharge* of Gold, so called for its golden colour; *Sandarak*, which is red; and *Realgar*, which is yellow: the artificial is prepared by a sublimation of the natural, with Salt.

Antimony is also natural, otherwise called Mineral; and artificial, which is most frequent in our use, having been melted from the Mineral in Cakes: Of the qualities and choyce of it, its constituting parts, and various kindes, we shall speak more fully hereafter, where we handle the practice upon this Mineral.

Cinnabar is a Mineral body, composed of Sulphur and Mercury, or Brimstone and Quick-silver, coagulated together to a stony hardness. The natural is extracted from Mines, where it is found more or less mixed with Sand; the artificial is made by sublimation of those two substances mixt together.

Cadmy is natural or artificial; the natural is a Metallick Stone, containing in it self the volatile and impure Salt of some Metal; there are very many kindes differing one from the other, in colour, vertue, and consistency: The artificial is found in Furnaces where Metals use to be melted, being nothing else but the *Flores* or volatile Salt of Metals, sublimated and cleaving to the walls of the Furnace, raising, as the subtilest part of flower doth in Mills, to the roofs of melting houses. There are also of this several sorts, as, *Pompholyx*, *Spodium*, *Tuty*.

The other kinde of *Marcassites* are *Mineral Earths*, as *Bolus's*, *Terra Sigillata* of *Lemnos*, *Silesian Clay* or *Blois* in *France*, Chalk, red Clay, and all other Mineral Earths. To this we might also add, all Artificial Earths, as the several kindes of Lime, made out of several sorts of Stones, and containing in them a corroding Salt, and a secret fire.

But before we begin with the Section of *Metals*, we must remove a difficulty which offers it self in this place; and that is, That since Salts are reckoned amongst Metallick Juices, how

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can Armoniack Salt, and some kinde of the Metallick Earths, of which we have spoken above, be placed amongst *Marcassites*, since *Marcassites* or middle Minerals, do not indeed yield or extend themselves under the Hammer, but are fusible; for it is granted that Armoniack doth never melt in the fire, but rather ascends and sublimates it self; and so likewise those Metallick Earths do not melt, but easily calcine and sublimate themselves in Metallick Flowers. To this we answer, that if indeed Armoniack Salt be put alone in a Crucible, it will not melt, but sublimate; But if this Salt nevertheless be mixt with other Salt in fusion, it will melt together; as likewise if Metallick Earths be mixt together alone, they shall rather be calcined then melt; but if they be allayed with some fusible body, then are they capable of fusion: as by Example, When to equal weight of red Copper, is added as much *Lapis Calaminaris*, it will melt with the Metal, turn it into a yellow Brass, and make an augmentation of fifty in the hundred. It is then to be noted, that when *Fossiles* are divided into Metals, Stones, *Marcassites*; by *Marcassites* or middle Minerals must only be understood those bodies which participate, or bear some relation with the nature of Stones or Metals, either in respect of their fusibility, or extensiveness, or hardness, or softness. So that noble Mixt which seemeth to be the Master-piece of Art, that is Glass, must in this sense be reckoned amongst *Marcassites*, since it easily melts, but cannot for all that yield and extend it self under the Hammer, if you except that which was made Malleable at *Rome* (in the time of *Tiberius*) whereof the Secret is perisht with its Author.

Sect. VI.

Of Metals.

METals are hard bodies, generated in particular Matrixes or Wombs in the bowels of the Earth, which may be extended under the Hammer, and melt in the Fire. They are commonly reckoned seven in number, which number is referred to the seven Planets, whose names (in the writings of Chymical Philosophers) they sometimes do borrow. They are divided into

perfect and imperfect: Perfect, say they, are those which nature hath advanced and brought to their ultimate and perfect end. The tokens of which perfection are, perfect fixation, a most exact mixtion and union of the constitutive parts of those Bodies, accompanyed with (requisite) weight, sound, and colour; capable of bearing a long fusion, and a strong ignition, without altering their qualities, and losing of their substance: There are two of this nature, *viz.* the Sun and Moon, or Gold and Silver. Imperfect Metals are of two sorts, *viz.* hard and soft; those that are hard, are rather susceptible of ignition then fusion, as *Mars* and *Venus*, or Iron and Brass; soft, are those which are sooner susceptible of fusion then ignition, as *Jupiter* and *Saturn*, or Tin and Lead. The Mercury or Quick-silver is accounted the seventh Metal, and is a liquid Metal, for this cause called *fluid*, as the other are named *solid*: Yet by reason of this fluidity, some do expell it from the *Classis* and number of Metals, and place it amongst the substances that are neerly related to Metals, as being a kinde of Meteor of a middle nature between; and even many Philosophers, will have it the first matter of Metals.

Metals and Minerals are differenced in sex, and accordingly several kinde of Menstrues are used for their dissolution: so nothing but Regal water can dissolve Gold, Lead and Antimony, which are accounted of the masculine sex; but ordinary *Aqua fortis* is sufficient to dissolve the others, which are accounted of the female sex.

Before we put an end to this Section, some few Questions, which are usually raised, about the nature of Metals, must be illustrated: The first Question raised, is: *If when several Metals are melted together, any Metallick* Species, *differing from the Metals, which do make the whole Compound, is thereby raised?* To which, the Answer is negative, because it is not a true mixture, much less a strict and exact Union, but rather a Confusion, since they may be again separated asunder. There is another Doubt also made upon this matter, *Whether or no Metals do specifically differ amongst themselves, or only according to the more or less perfection:* But *Scaliger* answers to this, that Nature hath no more made Metals in order to the production of Gold, then framed other Creatures to the generation of Man; it may be added to this, that

that God created this variety of Metals for the perfection and beautifying of this Universe, and the several uses wherein men do imploy them: We must nevertheless acknowledge as a truth, that both Minerals and imperfect Metals participate of the nature of either of the two perfect Metals; and most commonly of both together, as it is evident by the extraction which those can make, that are Masters of the secret of this separation, performed either after a preceding digestion, or by examining by the true instrument of Separation, external Fire, which excites and actuates the internal, potential Fire of things, and is the only Instrument of Philosophers to verifie by deed what I have said: Whence we conclude, that these imperfect Metals and Minerals do continually endeavour the perfection of their natural predestination, whilest they are yet in their Mothers Womb; which they are able to do no more, when torn off from their Matrixes. This Question is commonly followed by another, which demands, *Whether the power of Art doth extend to the changing of an imperfect Metal, and may advance it by this Metamorphosis to the perfection of either of the great Luminaries?* To which our Answer is affirmative; since it is certain, that both Art and Nature applying Actives to Passives, are capable of great and noble transmutations. But the difficulty of success is almost insuperable: and this is that *Great Work*, which since so many Ages hath vexed the mindes of so many obstinate searchers, wearied and weakened their bodies, and emptied their Purses.

The last Question to be touch'd here, and ordinarily made, is, *Whether Gold may be made potable?* To which the Answer is, that it cannot be doubted of, since Experience doth shew that it may be converted into Liquor; but the chief point is to know, whether this Liquor can afford nourishment, as many do endeavour to perswade: which we do deny, since there is neither correspondency nor analogy between Gold and our Body, which is necessarily required between nourishment and the body nourished; but there is no proportion between the Metallick and Animal Nature. Yet no doubt is to be made, but that this Liquor is a very Soveraign Medecine, if it be performed with a *Menstruum* or dissolvent friendly and amicable to our Nature, and capable to render Gold so volatile, that it may not be afterwards in the

power of Art, to reduce it again to body. For being thus once prepared, it passes easily to the very last digestion, where it corrects whatsoever it meets with that is defective; and so it alters and changes our body for the better, provided the right Dosis and way of using it be known, otherwise it would rather prove a devouring Enemy, then a familiar and pleasing Guest.

Sect. VII.

Of Stones.

STones are hard Bodies, which neither are extensible under the hammer, nor meltable in the fire. They are generated in their particular Matrixes out of a Juice, which hath the Idea and Lapidifick ferment imprinted in it self: they receive their various colours, from the various Mines through which their Lapidifick juice, and their Mercurial fumes, or coagulating Spirit doth pass. They are either opacous, or transparent: The transparent are either with or without colour; so in all likelihood we may say, that the Coagulative Spirit of Emerald passeth through a Mine of Vitriol or Copper; that of Opal through a Sulphureous Mine; of Ruby and Carbuncle through a golden one; Granats and some other like Stones of this nature, draw their colour from Iron, a proof whereof is, that they are attracted by the Loadstone; and so we may conclude of others. But the Coagulative Spirit of Diamond and Rock Chrystal, is only a pure and unmixt petrifying Spirit, deprived of all tingent Sulphureity; which by consequence leaves in it nothing but that lovely and admirable transparency, for which they are admired.

It is noted, that opacous Stones, are not only generated in the bowels of the Earth or Waters, but also in the bowels and entrails of all kinde of Animals, as the searchers of Nature have made it manifest.

Thus briefly we have run over the Nature of Minerals: For in what concerns the Doctrine of their particular hystory, we must have recourse to such natural Philosophers as have exactly and professedly written thereof, as *Georgius Agricola*, and *Lazarus Ercker*; for our intention is, only to make an Abridgement of the

the chief heads, to which you may referre all the natural Mixts which depend upon, and flow from them.

Sect. VIII.

Of other Mixts, both Animate and Inanimate.

WE have said above, that there were two kindes of Inanimate Mixts, *viz.* Those that are extracted from the bowels of the Earth, and those that are not; it remains we should speak of these last, since we have, as much as the Lawes of our Abridgement can suffer it, discoursed of the former. Those which belong to this last *Classis*, are Juices and Liquors, extracted out of Plants by expression; as also mediately or immediately from Animals: As for Example, Wine, Oyl, Vineger, Gums, Rosins, Fruits, Fats, Milk, *Cadavers* and their several parts, and many other things, which as remedies are used for the restauration of mens decayed health.

Animate Mixts, are either Vegetables or Animals; Vegetable or Plants are either perfect or imperfect: Perfect Plants are those which have both root and stalk or surface: Imperfect, which want either of the two; * *Trussoli* are of this kinde: for their root makes all their substance, and contrariwise Mushroms, in which there appears little or no root at all. Perfect Plants are divided into Hearb, Shrub, and Tree; and each of these again subdivided into an infinite number of differing kindes, the names whereof are to be found in Herbals. The parts of perfect Plants, are principal, or less principal; Principal are those which the Vegetative soul maketh use of in her functions, and they are similary or dissimilary: Similary again are, liquid or solid; Liquid are Juices and Drops, which if they be aqueous are coagulated into Gums, if sulphureous in Rosins; and for this reason Gums dissolve in Liquors of an aqueous nature; and Rosins cannot be dissolved, but by Oyls, and analogical Liquors. The solid parts are the substance or carneous part, and the fibres of the Plant. The dissimilar parts, that is to say, those which con-

* *Tuberes terræ*, Puffes.

contain in themselves a diversity of substance, are perpetual or annual. Perpetual or lasting long, are the root, the stock, the rinde, the marrow and the branches: Annual are those which renew every year, as the buds, flowers, leaves, fruits, seeds, *&c.*

As the plants then have a great variety of parts, and they divided into several kindes; so likewise Animals, which are composed of similar and dissimilar parts, are divided into several *species*: for they are either, rational or unrational; the irrational, or beasts, are perfect or unperfect: Perfect are those which are without cæsure, and for the nourishment of their parts do generate blood: Unperfect, such as are Insects, breed no blood and are divided by cesures. All beasts, whether perfect or unperfect, are either gressile and marching, or reptile and creeping, or natatile, *i. e.* swimming, or volatile, *i. e.* flying. But if you desire to be further instructed in the History of Animals, read *Aldrovandus*, who hath treated of this subject with great exactnesse; and for the knowledge of Man and his parts, consult Anatomists.

Chap. VI.

In what manner Chymistry *worketh upon all these Mixts, to extract what is* pure *in them; and rejects their* impurity.

YOu see by the enumeration of these Mixts, of what vast extent is the Empire of *Chymistry*, since her operation is busied upon these so different Compounds: for she may choose any of these bodies, either to divide and resolve it into its Principles, by making a separation of the Substances which do compound it; or she uses them, to extract the mystery of Nature out of them, which contains the *Arcanum*, *Magistery*, *Quintessence*, *Extract* and *Specifick*, in a much more eminent degree,

degree, than the body from whence it is extracted; because this body, by Chymical Preparation which separates *impurities*, for the perfection of this mystery, is changed and exalted; as we shall make it plain in the Book of Operations. For it is not enough to study and read the Works of *Paracelsus*, and chiefly his Books of *Archidoxa*, which I have already recommended: but you must also use your hands, and come to the Practical part, if you will unriddle his Obscurities, not heeding the time which therein must be spent, nor thinking much of the labour and charges; As most do, who by the reading of some few Authors, only grounded upon the authority and opinions of their Predecessors, neglecting experience and the painfull search of Natures secrets, think and imagine to attain unto great perfection, though Experience be one of the Columns of the best Natural Philosophy, and consequently of the truest Physick. That we may then the better attain to it, we shall here conclude the Theorical part, to come to the Practice; and by the help of one, illustrate the other the better.

The End of the Theory.

Part II.

Of the Abridgement of CHYMISTRY.

Book I.

Of the proper and neceſſary terms to underſtand and perform all Chymical *Operations.*

The *PREFACE.*

IN the First Part of this Treatiſe, we have ſhewed unto you the Grounds upon which doth lean all the Theory of Chymiſtry: *But becauſe we ſaid in the Preface, that* Chymiſtry *was a Senſal Philoſophy, which admits only what the Senſes manifeſt and demonſtrate unto us; it is time for us to come to the Practical part, and Operations depending of it, and to examine, Whether all what we have ſaid above, is grounded upon Senſe. No body muſt admire, that a Science ſhould become*

become Operative; since Operation is only to the end of perfecting Contemplation, and Contemplation seemeth to be only to help Operation; so that these two seem to be inseparable. And if it be true, that all Doctrine and Knowledge must begin by the Senses, according to the Maxim which saith, Nihil esse in Intellectu, quod non prius fuerit in Sensu; *I think it very necessary that the Senses be well informed and instructed by several Experiences, before you give your self to the Theory, or begin to contemplate upon Natural things, lest you fall into the error of those superficial Philosophers, who please themselves in arguing upon the Principles of some Doctrine, whereof experience discovers the untruth; as for Example: Is it not a very manifest and palpable error, to imagine that the Smoak or Fume, which any Mixt doth yield by violent dissolution, should be a Fire or Elementary Air, or some unmixt Substance; since, if they are examined in a Limbeck, or any other Vessel or Receiver, experience will demonstrate to the sense, that that Flame or Smoak, are neither pure Elements nor imperfect Mixts; but that it is sometimes the Body of a most perfect Mixt, as evidently appears by subliming of Brimstone and Armoniack Salt, and the Fumes of Mercury, which is the same Quick-silver, who like unto that* Proteus *of the ancient Poets, takes all sorts of shapes and colours; but returns again to its first nature, being revived.*

By this it appears, that it is not good to judge of things lightly; as to say that all Smoak is Air, because it hath some resemblance with Air: For though all Vapours and Exhalations are alike unto the sight, yet nevertheless are they of a very different nature; as those that examine them thoroughly, and search them narrowly, by the help of Chymical Vessels will discover; and this shall we demonstrate by the several Operations, whereof we are to treat in this last Part.

But because in the practical part of these Operations, we meet with several terms that are proper and essential to the Art of Chymistry, and seem to be of difficult understanding, it is necessary, before we enter into the discourse of Operations, to explain their meaning. We shall then in this First Book, treat of the several kindes of Solutions and Coagulations; because one of the chief ends of Chymistry is to spiritualize and corporifie again, thereby to separate Purity from Impurity: after this, we will shew the several degrees of Fire; by the means of which, and the help of several Furnaces, and divers Vessels, that true exaltation is attained unto, which from the mystery of each Mixt's nature,

doth extract the Arcanum, Elixir, Tincture, *or some sublime Essence graduated to such a height, as one drop or grain of these miraculous Remedyes may without comparison be more efficacious then many pounds of the grosse and bodily Mixt, out of which these Medicaments have been extracted.*

Chap. I

Of the several kindes of Solutions and Coagulations.

THough Chymistry takes for its object all natural Bodies, yet properly and particularly she confines her Operations upon Mixt Bodies, which she teacheth how to exalt by the help of Solution and Coagulation, who do contain under them several kinds of Operations, tending all either to spiritualize or corporifie, Minerals, Vegetables, and Animals: so that the exaltation of any Mixt or Compound, is nothing else but the purest part of the same, by the help of several Solutions and Coagulations often reiterated, brought to its highest perfection. To attain this point, Purity first must be separated from Impurity, which is performed materially or formally: Materially, by cribration or sifting, ablution or washing, edulcoration or sweetening, detersion or cleansing, effusion or powring, colation and philtration, or running through a bag, and despumation: Formally, by distillation, sublimation, digestion, and several other reiterated Operations, whereof hereafter.

The separation of Purity and Impurity being performed, to obtain a perfect exaltation of the Mixt, the impurity of it must be rejected, and that which is pure be first put in Solution, then Coagulation; which is done either by reducing it to very small Particles, or to Liquor, or else in a solid Body, by help of the following Operations, *viz.* Limation or filing, rasion or scraping, pulverisation or reducing to powder, alkoholisation or reducing to atomical parts, incision or cutting, granulation or reducing into small grains by melting, lamination or converting into

into thin Plates, putrefaction, fermentation, maceration, fumigation, which is either dry or moyst, cohobation, precipitation, amalgamation, distillation, rectification, sublimation, calcination either actual or potential, vitrification, projection, lapidification, extinction, fusion, liquation, cementation, stratification, reverberation, fulmination or detonation, extraction, expression, inceration, digestion, evaporation, deiccation, exhalation, circulation, congelation, crystallization, fixation, volatilisation, spiritualization, corporification, mortification and revivification; all which terms, to remove obscurities in the understanding of the Artist, we will further illustrate in this Chapter.

Cribration, is when the matter, after it hath been pounded in a Mortar, is sifted through a thin Cloth or a Sieve, the one is for the exact contusion, the other for the grosser.

Ablution or lotion is, when the matter to be cleansed from its grosser impurities, is washed in water; but when the matter by its weight is fallen in the bottom of the Vessel, and the water powred out by inclination, it is called *Effusion*.

Edulcoration is, when the spirituous, saline, and corrosive parts of Chymical Preparations, performed by actual or potential calcination, are separated.

That matter which cannot endure water without alteration, or loss of its substance, is purged by *Detersion*; and if it be put in any convenient Liquor, and then afterwards grossely expressed, either through a Linnen, or some other Strainer of Cloth or Tamy, it is called *Colation* or Percolation: but if this Operation be performed through some more compact substance, it will be called *Philtration*, which is performed either by the Cloth, Paper, or Ragge; that which is performed through the Paper, is cleanlier and exacter.

Despumation is nothing else, but separating of the skum, or other impurities which swim above the matter, with some proper Instruments to that purpose.

Limation is the solution of continuity of some mixt Body, performed with a File of Steel: it is used in all the three Families of Bodies; for, the Bones of Animals, the Wood of Vegetables, and the Bodies of the most compact, hard and solid Metals yield to the File.

Raſion comes very neer Limation, but is performed with a ſharper Inſtrument, as a knife, or ſome of the like nature; it may alſo be referred in a manner to Inciſion.

Pulverization or Contuſion, are nothing elſe but the reduction of ſome Mixt into Powder, by means of Trituration or grinding upon a Marble or Porphyry, or pounding in a Mortar; and if the matter be reduced to an impalpable and imperceptible Powder, it is called *Alkoholiſation*, which is alſo ſometimes ſaid of liquid things, as the *Alkohol* of Wine, or other volatile and inflamable ſpirits, when theſe ſpirits are ſo deprived of their phlegm and wateriſh part, that they conſume and flame away with the matter wherein they were dipt, be it Linnen, Paper, or Cotton.

By *Granulation*, Mineral and Metallick Bodies are reduced to ſmall grains, and by Lamination extended in ſmall and thin Plates, as are Gold, Silver, Leaf Copper, *&c.*

Putrefaction is, when the Mixt by a moyſt heat without any mixture tends to its corruption: and if it be performed by the mixture or addition of any Ferment, as Tartar, common Salt, Yeaſt of Beer, Leaven of Bread, or Lees of Wine, it is then called Fermentation.

Maceration is, when any matter is put in a *Menſtruum* or proper liquor to infuſe, that liquor being choſen according to the deſign or intention of the Artiſt, to extract the vertue of the Body upon which it works. This Operation requires a fit and competent time for compleating the Extraction, which retards or advances, according to the more or leſs ſolidity and compactedneſs of the body wrought upon.

Fumigation is a Corroſion of the external parts of a body by a vapour, or ſharp and corroding Exhalation: If it be by a vapour, as is that of Vinegar, it is a moiſt fumigation: if by Exhalation, as the fumes of Lead or Quick-ſilver, it is a dry fumigation, calcining laminated Metals, or reduced in Plates, and making them ſo crumbling and brickle, that they may afterwards be eaſily reduced to powder.

Cohobation is done, by often powring again the *Menſtruum*, extracted out of one or ſeveral Mixts upon its own feces, or the remainder of thoſe Mixts in the Receiver, either to draw the Central Vertues encloſed in thoſe Compounds, or to cauſe the ſame

same feces, to resume and take back, what in the distillation they had suffered to flie up and volatilize by the action of heat, and in this only Operation doth Cohobation consist.

Precipitation causeth the dissolving *Menstruum* to quit the body which it had dissolved, which is performed by the analogy that Salts have with Spirits; for, *Whatsoever is dissolved by Spirits, is precipitated by Salts; and contrarywise.* This Operation requires the particular consideration of the Artist, because it gives great light, and is a great key to comprehend the generation and corruption of natural things.

Amalgamation is a particular calcination of Metals, which some Authors do call *Philosophical Calcination*: It is performed by the union of Mercury or Quick-silver with the least particles of Metals, which doth so separate and open them, that they become unctuous and extensible upon the hand; so that evaporating the Quick-silver with a convenient heat, the Metals are reduced to a very subtile *Calx*, which cannot be performed so well by any other means.

Distillation is, when the matter inclosed in a Vessel, drives and sends up vapours in another Vessel, by the help and activity of Fire: There are three *species* of it. The first, when the vapour of distilled Substances do ascend. The second, when the same vapours are driven by the side of the Vessel: And the third, when downwards: all these according to the distillable matters, and the fitness of the Vessels for Operation.

Rectification is nothing else but a reiterated Distillation, and that to subtilize the more the distilled vapours, or separate some Spirit from its Phlegm, and the more terrestrial and gross parts, according as the Spirits are, either sharp and fixed, or volatile and inflamable.

Sublimation is an Operation, by which the action and heat of Fire, elevates a whole body in dry Exhalations, or at least some part of it which cleaves and condenses it self in thin and subtile *Flores*, or sometimes thick, compacted and pressed in the top of the Vessel: this manner of Operation is opposed to *Precipitation.*

Calcination is a violent action, which reduces the Mixt to *Calx* and Ashes. It is double, actual and potential: the actual is

performed by flaming Wood or kindled Coals, which are the material fire: Potential Calcination is that which is made by the secret and potential fire of strong and dissolutive Waters, or *Aqua Fortis*, single or compounded, and by the vapours and corrosive fumes, as it is observed in Precipitation and Fumigation.

Vitrification is the change of Metals, Minerals, Vegetables or Stones in Glass, and that by projection after their fusion, or by addition of Salts, *Alkali* or fixt, or extracted from Lees, which do penetrate and purifie these several substances, and vitrifie them by giving them fusibility and transparency: There are many nevertheless Opacous also, which are used for enamelling, and called *Amels*.

Lapidification is when Metals are changed into Stones or Pasts, which in a kinde are of a middle nature, between Metallick and Transparent Glasses; and Amels, because they are susceptible of a fair polishing.

Extinction is the suffocation and cooling of a hot kindled substance in some Liquor, either to the end of extracting its vertue and communicating it to the Liquor, or to impart some adventitious quality to the substance immersed; as when, for Example, *Tuty* or *Lapis Calaminaris* is extinguished in Fennel water or Vinegar, to make them more efficacious for the cure of the Eyes; as also all Iron and Steel Tools are dipt, to become thereby more apt for polishing, and receive a hardness, and consequently an edge.

Fusion is properly said of Metals and Minerals, and is performed by a great and violent Ignition. And *Liquation* is only said of the fat of Animals, Wax, and unctuous fat and resinous substances of Vegetables, performed by a temperate heat.

The Impurities of Metals are removed by *Cementation*; it serves also to examine them, whether they are true or false, as also to lessen their bulk by the compressing of their parts, which is performed by stratification, making a bed or lay of Cement, another of Metallick Plates, and so continuing *stratum super stratum*, or lay upon lay, till the Vessel be top full; but you are to note, that the first and the last lay must be of Cement, after which the

Pot

Pot or Crucible must be exactly luted, to give a Circular fire by degrees untill fusion.

Reverberation is an Ignition, by which Bodies are calcined with a flaming fire in a Reverberatory Furnace: Whether it be done to the end corrosive Spirits may be separated from it, or to subtilize and soften the body with that Operation.

Fulmination or *Fulguration* is an Operation, by which all Metals, excepting Gold and Silver, are meteorized, and driven or reduced into vapours, exhalations, and fumes; by the help of Lead in a Copell, with violence of fire kindled and animated with good and ample Bellowes.

The end of *Detonation* is to drive away and separate all the Sulphureous and Mercurial parts of a Body which are not pure, that there may remain the earthly part only, which is accompanyed by the internal and fixt Sulphur, in which is properly inherent the vertue of Minerals. This Operation is performed by the help of Salt-peter or Nitre, as it appears in the Precipitation of Diaphoretical Antimony, made by Detonation and Fusion.

Extraction is, when the essence or tincture of a Mixt is extracted, by help of a *Menstruum* or convenient Liquor, which the Artist doth evaporate away, if it be unusefull and of small value; but if of any price, he draweth it again by Distillation, to use it in other Operations; that which remains in the bottom of the Vessel is called Extract.

Expression tends to separate the subtileſt from the grosser parts of the body, according to the intention of the Artist, to preserve the one or the other, it is performed by a Presse which screwes, or otherwise, and Tables.

Digestion is one of the principal and most necessary Operations of Chymistry; because Mixts are made tractable by it, and capable to yield us what we desire out of them; it is performed by the means of a convenient *Menstruum*, and a slow and long heat: most commonly joynted Vessels meeting at the mouth, called properly Circulatory, are employed for this purpose, that nothing of the volatile spirits of the digested Substance may be lost; to this Operation are commonly made use of, the heat of a watery Bath (*Balneum maris*) or vaporous, or aerial, or the heat

heat of Horſe-dung, Aſhes, or Sand. *Digeſtion* hath a great affinity with *Maceration*, they do notwithſtanding differ among themſelves; in regard that there is a kinde of coction performed in the act of Digeſtion, which is not done in Maceration.

The *Menſtruum*, which hath been uſed in Diſſolution or Extraction, is by evaporation reduced to vapour, and this way is *Deſiccation* performed: but by Exhalation the drye ſpirits are carryed away from the ſubſtance by the vertue of the fire, and reduced to Exhalations.

Circulation is an Operation, by which the ſubſtances, contained in the bottom of a Pelican, or Circulatory Veſſel, are driven upwards by the action of heat, and thence fall again upon themthemſelves, either to volatilize them by the help of ſpirits, or to fix the ſpirit by the frequent and reiterated contact of the body; which is a thing very well worthy the contemplation of him that will attain the true knowledge of Nature.

Congelation is, when the ſolid parts of Animals are, with ſome convenient *Menſtruum*, reduced to a Jelly by Elixation: Such are the Jellies of Horns, Bones, Muſcles, Sinews, and Cartilages; but you are to note, that this Congelation proceeds only from the volatile Salt, which abounds in Animals: As *Cryſtallization* is properly ſaid of Salts purified by ſeveral Solutions, Filtrations, and Cryſtallizations, after the Liquor in which they are contained, hath been evaporated to a skin.

Things volatile are fixed by *Fixation*, as contrarywiſe Fixt are volatilized by *Volatilization*. That ſubſtance is called fixt, which abides and is permanent in the fire; as volatile is called that which flyes and exhaleth it ſelf with the leaſt heat. But note here, that as there are ſeveral degrees of heat, ſo there is ſeveral things fixt, and ſeveral volatile.

Spiritualization doth change the whole body into Spirit, ſo that it becomes no more palpable nor ſenſible to us: And by *Corporification*, the Spirit re-aſſumes its Body, and manifeſts it ſelf again to our ſenſes; but the body ſo qualified is an exalted body, very different in vertue from that from which it hath been extracted, ſince this body ſo glorified contains in it ſelf the myſtery of its own Mixt.

By *Mortification*, Mixts are as it were deſtroyed, and loſe all the

the qualities and vertues of their first nature; to acquire others much sublimer and more efficacious, by the help of revivification. *Paracelsus* meant it of this Operation, when he said, That the power of death was efficacious, since no resurrection can be without her: And as the Apostle S. *Paul* saith, *It is necessary, that the grain of Corn should first dye in the Earth, before it can live again, and multiply it self in the Ear which it produces.*

Chap. II.

Of the several degrees of Heat and Fire.

THE most potent Agent that Nature hath furnished us withall under Heaven, to perform the Anatomy of Mixt Bodies, is *Fire*; which to feed and maintain it self, doth need first a combustible oily and sulphureous matter, either Mineral as Sea-coal, or Vegetable as Chark-coal, and the Oyls of Vegetables; or finally, Animals Fats, Suets and Oyls of Animals. Secondly, Fire needs a continual Air, that may by its action drive away the excrements and fuliginous emanations of the substances which are burned, and that may animate the Fire, to make it more or less act upon its subject; and from this necessity it is that some, though improperly, have affirmed, that the Air was the true food and nourishment of Fire. If we will exactly speak, it cannot be said, that Fire receives more or less by it self or in it self, or as Philosophers speak, admits of intention or remission; Though the matter upon which it doth act, may receive great variety of degrees of heat, according to its neerness or distance, or interposition of things which may receive the impression of heat; whence it necessarily followes, that the ordering of the heat of Fire, doth consist in a just and convenient quantity, administred by the Artist, according to the nature and condition of the matter upon which he worketh, and according to the means or instruments which he uses, to whom it is required he should give a proportionate distance.

To encreaſe the Fire, it is required, either to add a greater quantity of Coals in the Fire, or if there be enough, and that the Artiſt doth finde it not to burn according to his expectation, there muſt be more Air let in, either by the dore or mouth of the Furnace which receives the Fire, or by the Aſh-hole, which is better: as alſo by opening the Regiſters, which are uſually made either at the upper part, or in the ſides of the Furnaces, to let out exhalations and fuliginous vapours, which commonly ſuffocate the Fire; or laſtly, by blowing large bellowes and of a capacious body for room of winde. From this that is ſaid may be conceived, that Fire may be decreaſed and weakened by the contrary wayes, as ſhutting the Dores and Regiſters, to hinder the entring of Air, and iſſue of fuliginous ſubſtances; or the combuſtible matter muſt be diminiſhed, or the Fire covered with cold Aſhes, or a plate of Iron, or a Brick, to hinder ſuch diſorders and accidents as uſually happen in the midſt of the work.

As for the diſtance of the Veſſels containing the matter, it can only be judged according to the nature of the matter of their compoſition, or the Mediums interpoſed between, it may nevertheleſs ſtand as a general rule, that there ought to be a diſtance of about eight inches, between the Grate which contains the fire, and the Diſh or part upon which the bottom of the Veſſel which is to receive the heat doth reſt: For the action of Fire upon bodies, is mediate or immediate; Immediate, when without oppoſition Fire acts upon the matter, or Veſſel that contains it, whether it be a Crucible, Retort, or any other thing; and this is commonly called *Open Fire*; Fire of Calcination and ſuppreſſion: Mediate is, when any thing is interpoſed between the Fire and the matter, which doth hinder its deſtructive action; whereby the Artiſt is enabled to govern it, not otherwiſe then a skilfull rider manages a Horſe, and keeps him in awe, by the help of the Bridle which he holds in his hand.

We ſhall compriſe under nine chief Claſſes, the ſeveral differing degrees of Heat, and theſe the ingenuous Artiſt may yet vary in an infinite number of manners, according to his intention, and that the quality of the Mixt upon which he works, doth require it: Thoſe differences are as followeth.

We

We will take the first degree of Heat from the greatest extremity of its height, which is the fire of Flame, which calcines and reverberates all things; and this is that properly, which is capable to turn the most solid and fixt Bodies into Vapours and Exhalations.

The second is that of Coals, which properly and principally serves for Cementation, for colouring and purging, as well as for contracting Metals, as also those Minerals which participate most of Metallick nature. It is sometimes called *Circulatory* Fire, (*Ignis rotæ*;) sometimes Fire of suppression, according as the fire is placed above, under, or at the sides.

The third degree of Intense Fire, is that of the Iron Plate, when it is red hot at the highest; which is a kinde of heat proper to trye Metallick Tinctures, as well as the degree of Fixation of Mineral remedies.

The fourth is that which is maintained by the filings of Iron put in a *Capsula* or Kettle of the same Mettal; and this, because this substance being once heated, preserves its heat much longer then the other, and communicates it to the Vessel put into it, which contains the matter that is either to be distilled, digested or concocted, with a greater activity.

The fifth is the Fire of Furnace, with Sand interposed to the Vessel; it preserves, and yields a less heat then that of the filings of Iron, because it takes heat more slowly, and sooner cooleth, and is more easily kept in order, by the help of the Registers of the Furnace.

The sixth is the heat of Ashes, which in respect of the foregoing degrees, begins to be temperate: This Fire commonly is used in the Extractions of such Mixts as are of a middle substance, either Animals or Vegetables, as also in their digestions and evaporations.

The *Balneum Mariæ*, or (to speak more properly) *Balneum Maris*, maketh the seventh of our Classes or degrees; and it is the most considerable of all, as that which constitutes the most excellent and usefull part of the work of Chymistry; because an understanding Artist may manage it with that judgement and proportion, that he may with its help perform a numberless variety of Operations, which by any other imaginable way

are not to be attained unto: For this Bath may be boyling hot, half boyling, simpring, luke-warm, half luke-warm, and be yet so ordered as to keep the middle proportions of all these degrees too.

The eighth degree of well graduated Fire, is the Vaporous Bath, for the Vessels may be only put to the vapour of the water contained in the Bath: And for the ninth, there may be put about the Vessel sawings of Wood to receive the vapour, as also Oaten Chaffe, or any other, shred very small, because they are bodies which easily attract this vapour and heat, and keep it long in a slow, and almost perfectly equal temper.

Besides all these degrees and kindes of Heat spoken of, there remains yet the Lamp-fire, which may be graduated according to the distance or neerness of the Lamp, which shall have one or more Weeks; these weeks shall have two, three, four, or more threds, according as you intend to give a less or greater temper of heat to your matter; this Heat is chiefly used for Coction and Fixation.

The invention of ingenuous Chymists hath found out, besides this, several kindes of cheap Heats, as that of the Sun, either exposing your matter to the reflexion of the rayes of his light, received by some Body, more or less capable to reflect them; or concerning the rayes of the same Light, by the help of a Burning Glass, an Instrument whose invention may strike with amazement the best Philosophers, that are not well acquainted with the sphere of its activity, since the most obvious effects of it are, to melt Metals, according to the section and bigness of the diameter of these admirable Instruments. But that which of all is more worth enquiry, and surprizes more, is, that this Fire is a Magical Fire, differing from all other; since the vulgar is destructive, and this to the contrary preserves and multiplyes, as experience doth verifie in the *Solar Calcination* of Antimony, which loses its impure Mercury and Sulphur, vapouring away in this Operation, whereby it would be thought the body should diminish; whereas it acquires a cordial and diaphoretick vertue, with a considerable addition of weight: which is thus proved. If you calcine in vulgar fire ten grains of this Mineral, it diminisheth to four, and consequently there remains but six, which have

have yet a Cathartick and Emetick faculty: but if you calcine the same quantity with the Solar Fire, besides that it loses its ill qualities, by the Exhalation made of its Impurities, which no question have some weight, and seem in the Operation to have diminisht the ten grains; you shall, instead of that, the Preparation being ended, finde twelve grains of matter endowed with an admirable vertue; and this with just reason strikes into amazement the subtilest and most searching Wits; for, compare this to the other Operation, and you cannot but confess, that the augmentation is of a just full half. But it will allay something your astonishment, if you are acquainted a little more with the nature of this miraculous Fire, and can comprehend, that Light is that *Promethean* Fire, which gives life to all natural bodies, is their Principle, and indivisibly joyns it self to its like, wheresoever it meets with it in any subject.

Chymical Artists do likewise make use of Horse-dung, which yields a putrefying heat, specially recommended by *Paracelsus*, in the opening of the most solid and fixt Bodies, as are those of Metals and Minerals: To extract the easlier those noble remedies which he doth teach us, we may substitute to the Horse-dung, that of hot Bathes and Mineral Springs heated by Nature it self, as also that of *Balneum Maris*, which is Artificial, provided the requisite proportions be understood.

Chap. III.

Of the variety of Vessels.

THE matters which the Artist works upon, are not often put on the open bear fire: But that it is necessarily required they should be enclosed in fit and convenient Vessels, according to the intention of the work; which Vessels are to be set artificially and with great judgement upon the fire, whose action is mediate or immediate; to the end that the extracted substances vanish not, and be lost without proof, but

rather carefully and curiously preserved: We shall treat in this Chapter of the variety of those Vessels, and the several uses unto which they are serviceable.

Now these Vessels are to be considered either according to their matter, or their form; because they are the two essential parts, which make them to be used in the Operations of Chymistry, and their differences is as great, as the fancies and inventions are various in the mindes of Artists. And as they are since many Ages in quest of the perfection of the Operations of this Art, so shall we only trace, in more general tearms, the greatest part of the more necessary Instruments, to leave a latitude of liberty to the invention of those which will addict themselves to this Noble Art, after they are once introduced to attain to the most secret and abstruse knowledges of it, by the rare Preparations which are made by the means and assistance of the same.

There must ever be a care had to choose the cleanliest matter for the fabrick of Vessels, which must also be pressed and compacted, that the subtileſt portions of matter may not transpire, and that the substance of the Vessels may not communicate any forain quality to the matter, whether single or compounded, upon which the Chymist doth operate. Glass is the body, which excluding all others, would be the fittest to be employed, both by reason of its compactedness, and cleanly nature, were it capable to endure all the actions of Fire; but its fusibility, and the several accidents which may cause it to break; notwithstanding all the care and foresight of Artists, make it necessary to have a recourse to some other matters which may be capable of resisting Fire, and may not break so easily: As, for one, to Potters Clay, which furnishes several Vessels to the service and use of Chymistry, according to the several kindes of Clay, and their porosity; for if it be said, that it may be glased within with some Mineral or Metallick substances (as Leaden oar, *&c.*) which will hinder transpiration, it is as soon answered, that this Preparation makes them not differing from the nature of Glass, and so consequently subject to the same inconveniencies, as Glass is: For, besides their ordinary brickleness, there must also a great regard be had, not to expose them too soon from heat to cold, nor from cold to heat,

heat, because compression or rarefaction of the parts, and the air in them, would soon cause them to fly in pieces.

There is also some use of Metallick Vessels for many Operations in this Art, which without their help would prove very difficult, yea almost impossible; as much by reason of the activity of Fire, destroying and consuming whatsoever comes neer it, as for the several matters upon which the Artist doth use to work: for, to contain sharp, acid, saline, nitrous, vitriolick and aluminous substances, Glass, or leaded or glased Pots, are necessary; as contrariwise when you intend to distill spirit of Wine in abundance, Metallick Vessels that may long abide an open Fire, and contain much matter, are requisite. Distilled Oyls of Vegetables cannot also be drawn without these Vessel, because these Operations require a violent and long fire to disunite the Balsamick and Æthereal parts from the other, which are terrestial and saline, which cannot be separated without much ebullition, and store of water. But you are to note, that when you intend to work upon Mercury (which you are to understand henceforth to be Quicksilver) you must never make use of any Metallick Vessel, because this Metallick Body will easily amalgam and mix it self with the greatest part of Metals, though with greater ease with some then others. Thus much in short concerning the matter of Chymical Vessels.

As for the diversity of their form, it is distinguished according to the requisite or intended Operations. For when the distillation is intended, we use *Cucurbites* with their head —— or Limbeck, as also the brass Body, or *Vesica*, covered with the Moors head, made of the same Metal or Tin, lest the Spirits or distilled Oyls should draw any vitriolick substance from the Copper; And to prevent the same inconveniency, it will be very requisite, that all the Copper Vessels which are to be used by the Artist, be tinned within: For the distillation of new Fruits, juicy Plants, or Flowers, are to be used great and large Basons, on the top whereof a Tin Bell or distilling head is to be applyed: And these three kindes of Vessels, are sufficient for the distillation of all vapours extracted by ascension. But for performing the distillation of such vapours as are droven by the sides, Retorts and great Receivers are necessary, as Artists have found by experience, because

becauſe ſuch vapours cannot aſcend by reaſon of their heavineſs; it is alſo ſometimes requiſite to have earthen Retorts, or of Metal opened above, as alſo Receivers with three necks or channels, to change and fit others to the firſt, with more eaſe and diſpatch when occaſion requires, and to condenſe more eaſily and ſpeedily the Exhalations and vapours which the matter urged by the Fire's action doth yield; for were it not for that, either of neceſſity the Veſſel containing the matter muſt break, or the Recipient fly into pieces, if not changed, becauſe it would not be capacious enough to contain the vapour or ſpirits droven in by the Fire.

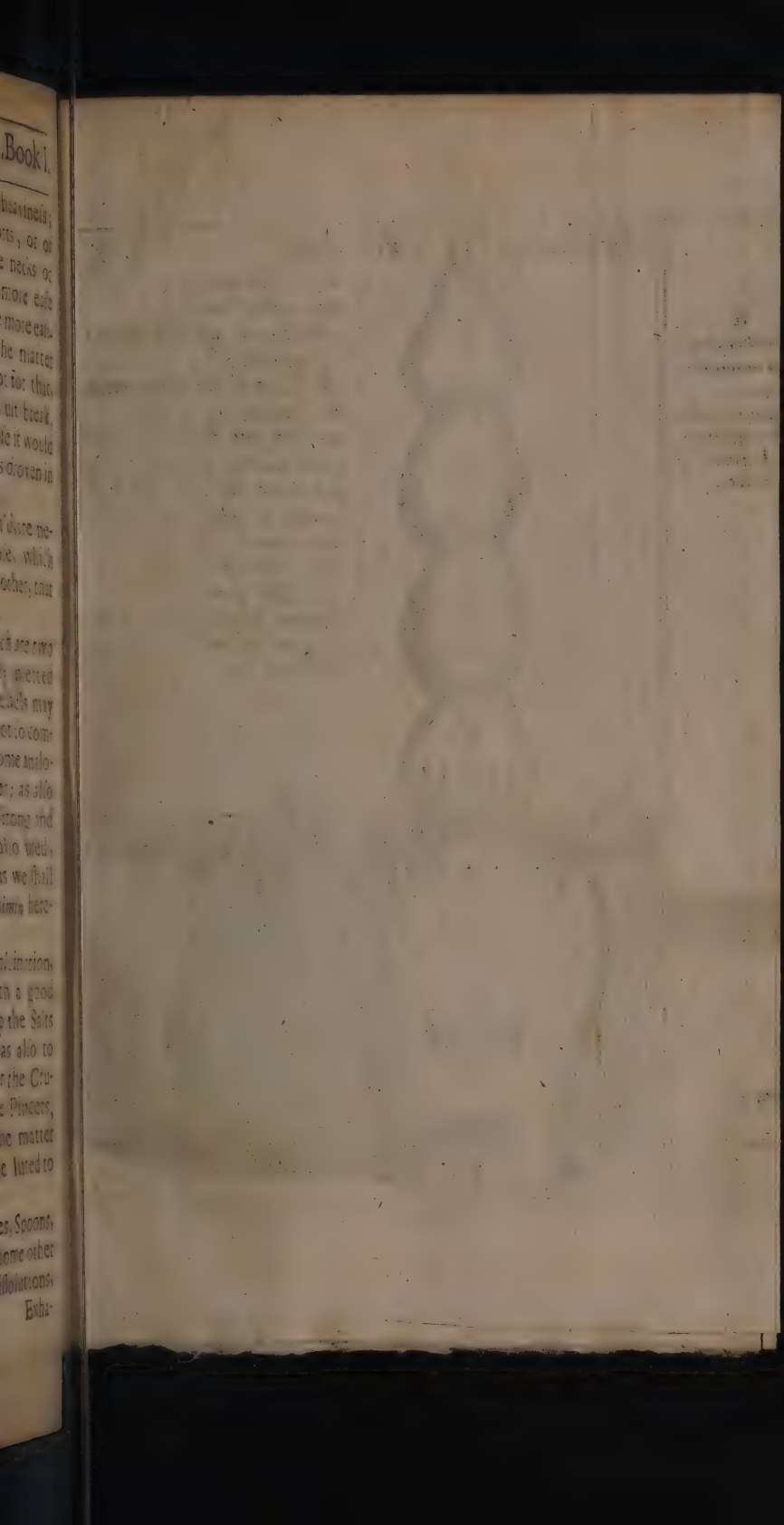
For digeſtion long neck'd Matraſſes and narrow mouth'd, are neceſſary: double Veſſels may alſo be uſed to this purpoſe, which are two Veſſels whoſe mouths are placed one in the other, that nothing of what is fitting to be kept in, may evaporate.

Pelicans are uſed for Circulation, as alſo twins, which are two Cucurbites with their heads, whoſe noſes are reciprocally inſerted in the body of the oppoſite Cucurbite. The double Veſſels may alſo be made uſe of for this Operation, but they are not ſo commodious. For ſublimation Aludels are employed, or ſome analogous Veſſels, as ſeveral earthen Pots put one in another; as alſo diſtillatory heads, or blinde Limbecks without noſe: ſtrong and well glued blew Paper ſhaped in a *Conick Figure* is alſo uſed, to receive the Exhalations of the ſublimed matters, as we ſhall teach more particularly in the ſublimation of *Benjimin* hereafter.

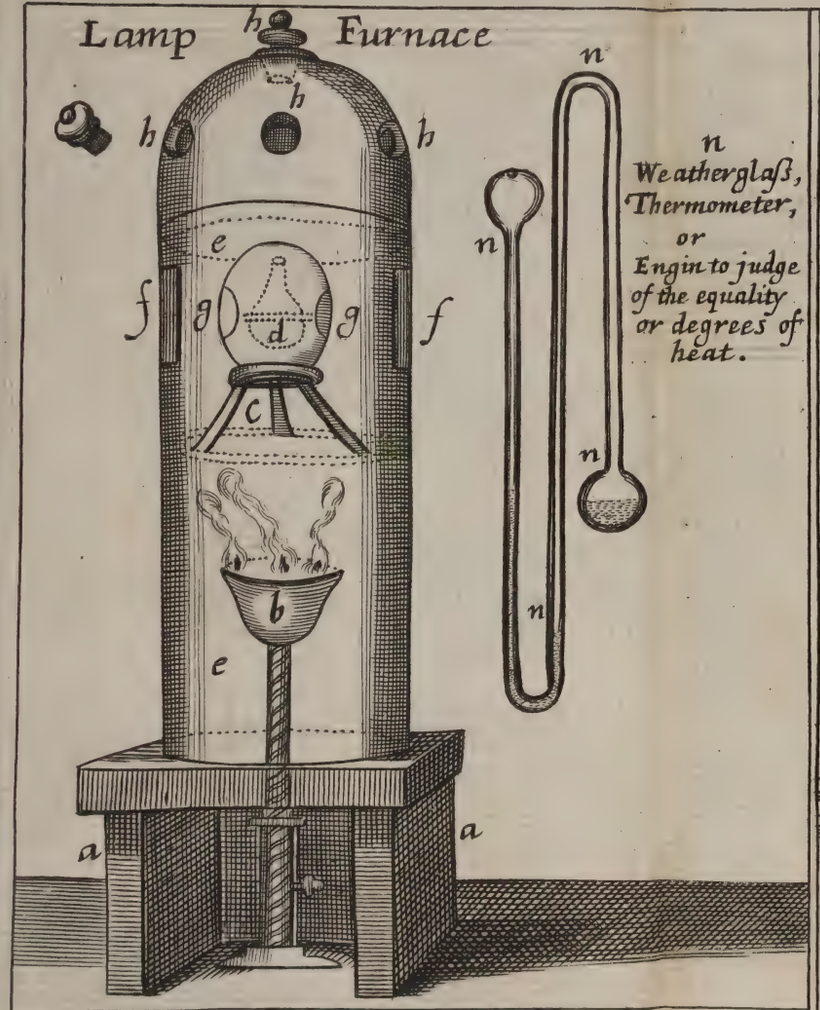
For Fuſion or melting, as alſo Cementation and Calcination, it is requiſite to be provided with Crucibles made with a good Earth, and well abiding the Fire, and capable to keep the Salts in fuſion, and hinder the vaporation of their ſpirits, as alſo to keep Metals in fuſion: There muſt alſo be coverings for the Crucibles, that may eaſily be put on or removed with the Pincers, that no Coals or any other Mixture, may fall into the matter whileſt it is upon the fire, or that they may exactly be luted to the Crucibles, as it is practiſed in Cementations.

Finally, the Artiſt muſt be provided with Pans, Diſhes, Spoons, and Spatula's of Glaſs, white Earth, Jugg-metal, or ſome other good Earth glaſed, or not glaſed or leaded, to uſe in Diſſolutions,

Exha-



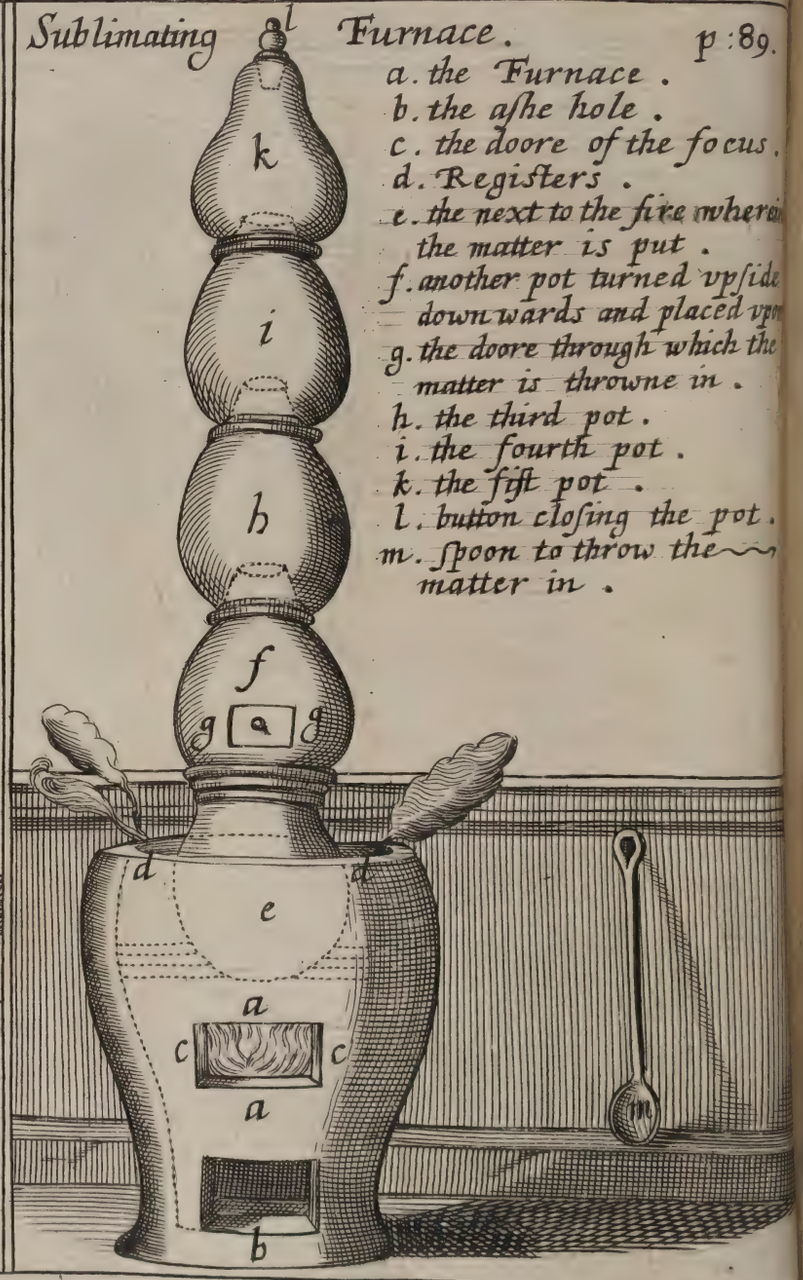
Lamp Furnace



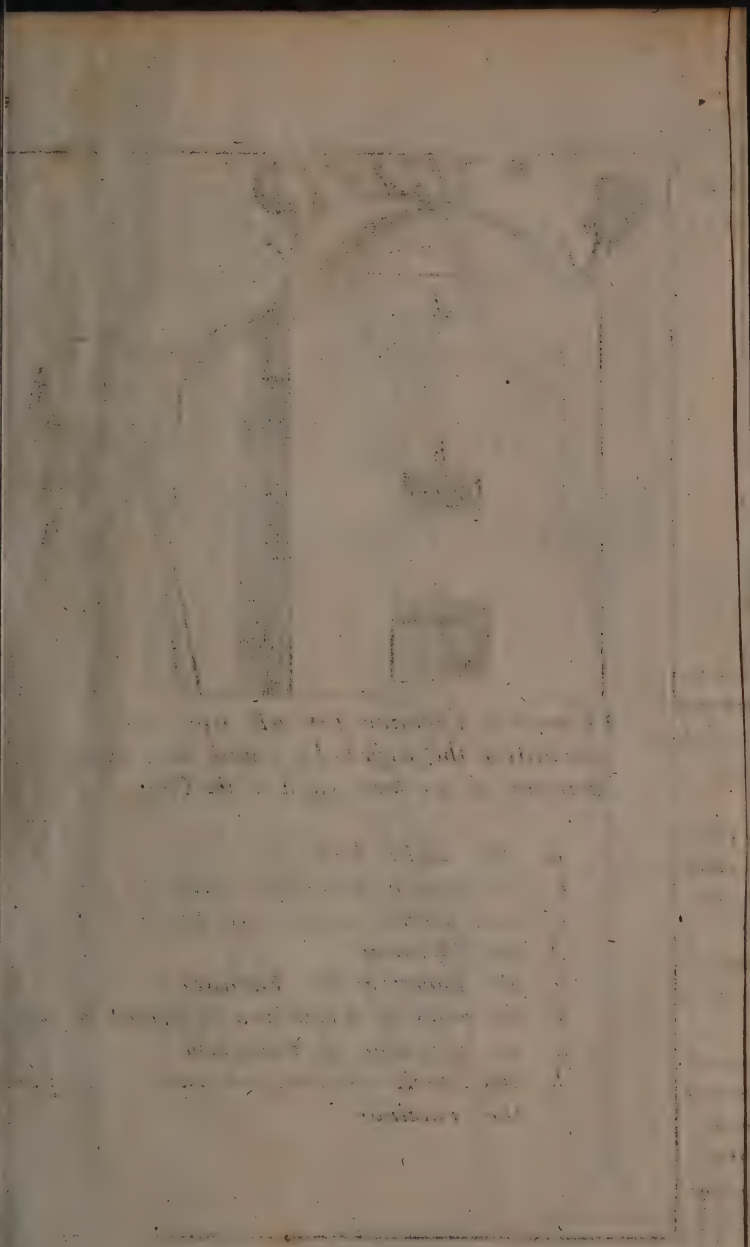
n
Weatherglaſs,
Thermometer,
or
Engin to judge
of the equality
or degrees of
heat.

a. the Basis of the Furnace.
b. a Lamp which may be raiſed and depreſſed with a ſcrew.
c. Trefoot, to ſet upon the Veſſel.
d. the Veſſel, with the Philoſophical egge.
e. firſt, ſecond and third peece of the Furnace.
f. glaſſe Window, to looke vpon the matter.
g. another Oval window oppoſit and anſwering f.
h. Regiſters.

Sublimating Furnace. p:89.

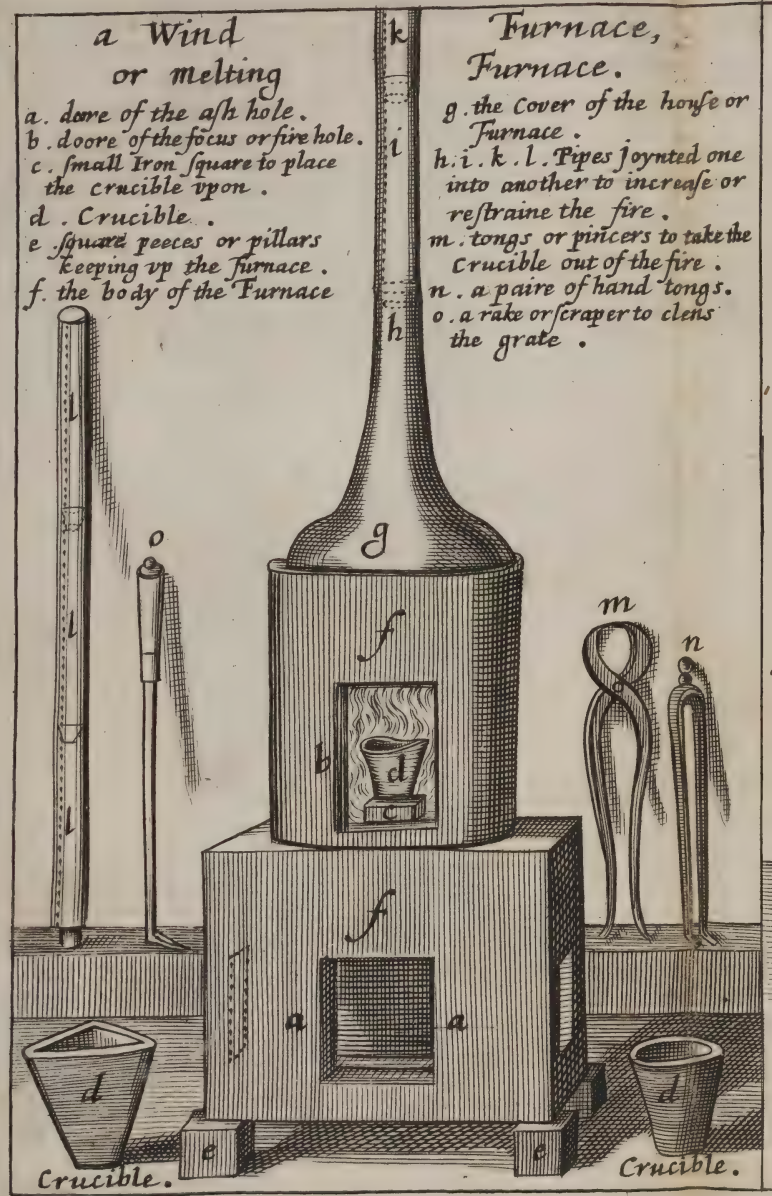


a. the Furnace.
b. the aſhe hole.
c. the doore of the focus.
d. Regiſters.
e. the next to the fire wherein the matter is put.
f. another pot turned vpſide downwards and placed vpon
g. the doore through which the matter is throwne in.
h. the third pot.
i. the fourth pot.
k. the fiſt pot.
l. button cloſing the pot.
m. Spoon to throw the matter in.



a Wind or melting Furnace, Furnace.

a. doore of the ash hole.
b. doore of the focus or fire hole.
c. small Iron square to place the crucible vpon.
d. Crucible.
e squared peeces or pillars keeping vp the furnace.
f. the body of the Furnace
g. the Cover of the house or Furnace.
h. i. k. l. Pipes joynted one into another to increase or restraine the fire.
m. tongs or pincers to take the Crucible out of the fire.
n. a paire of hand tongs.
o. a rake or scraper to clens the grate.



a Compleat Refrigeratory.

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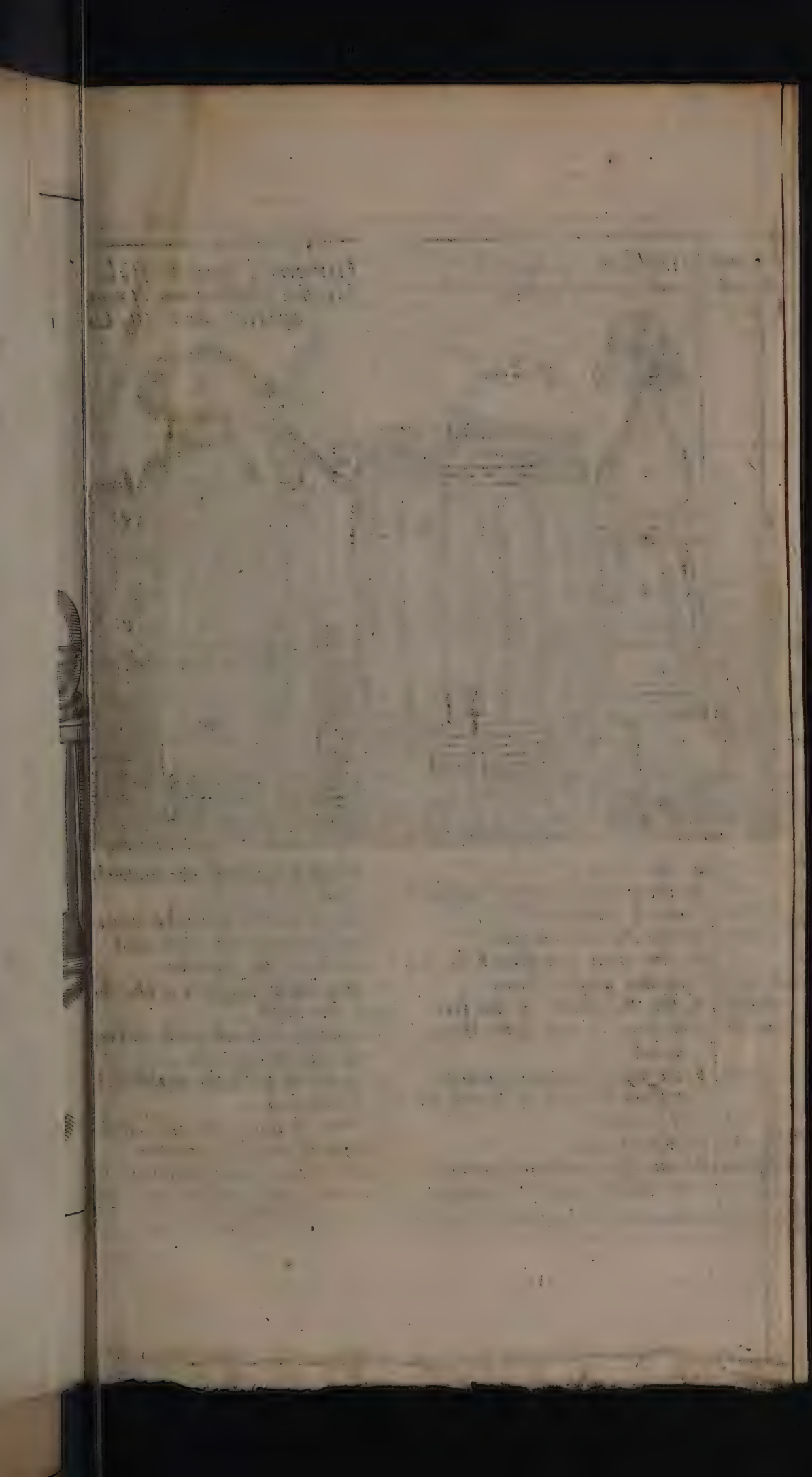
Body of the Refrigeratory.
The Antimoniall Horne or Iron Vessel to cast the Regulums.
Vessel of the Refrigeratory.
Roliple or Philosophers bellowes.



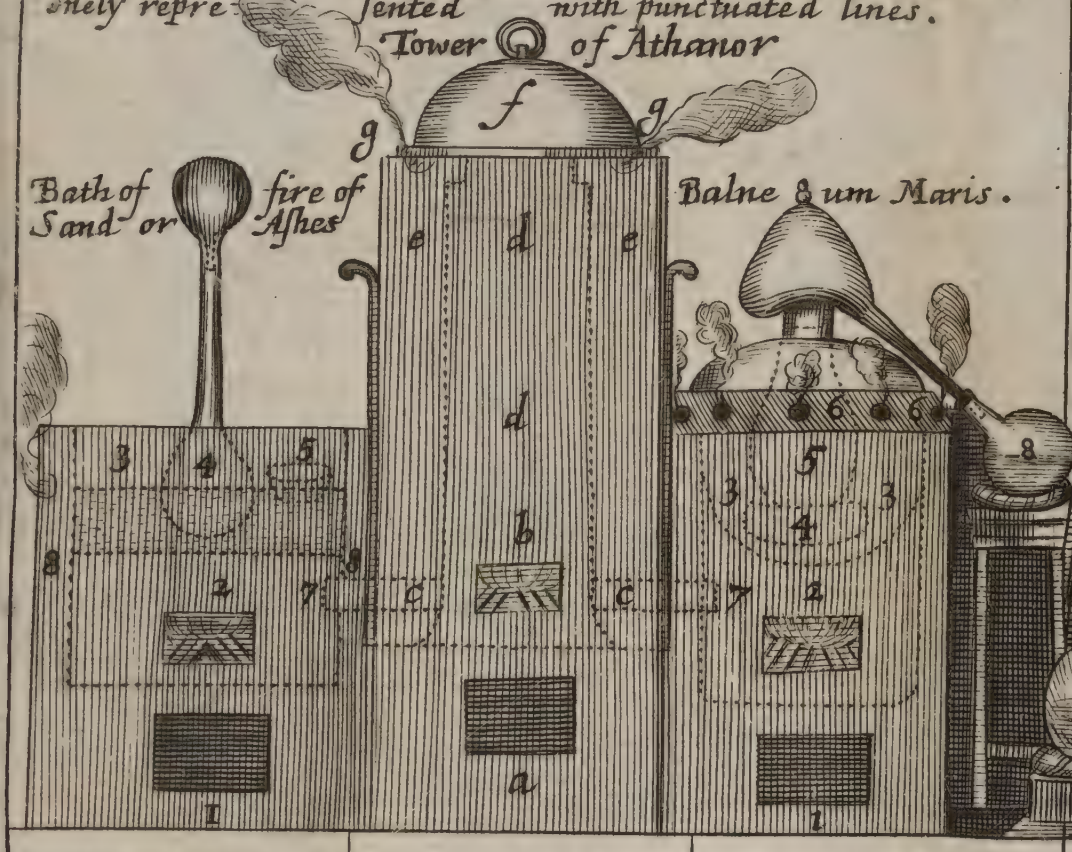
It is to be noted in these Figures and the following There are some Geometrical, some Optical made with a weake shade, the better to discerne the internal parts, which are onely repre- sented with punctuated lines.

Tower of Athanor

Bath of Sand or

fire of Ashes

Balne æum Maris.



1. the ashe hole.
2. the focus or fire wome.
3. the place where the ashes or Sand for the Bath are placed.
4. a Matrasse.
5. a glasse dish.
6. the Register of fire.
7. the entrance of the fire or heat from the Tower of Athanor
8. the Iron plate or Vessel containing the Sand or ashes.

a. the ashe hole.
b. the focus or fire woome
c. the passages made for comunication of the fire.
d. the empty place of the Tower.
e. the solid part of the Tower.
f. the cover of the Tower.
g. two severall circles wherein the cover is inluyd.

Vessel to separate the distilled oyles.

p. 89.

1. the ashe hole.
2. the focus.
3. the kettle where the water of the Balneum is put in.
4. a round (of wood, hay, or some other soft matter) to keepe vp the Limbeck body.
5. the cucurbite with its Limbeck head.
6. the Registers of fire.
7. the stoole or table to keepe vp the Recipiem
8. the Recipiem.

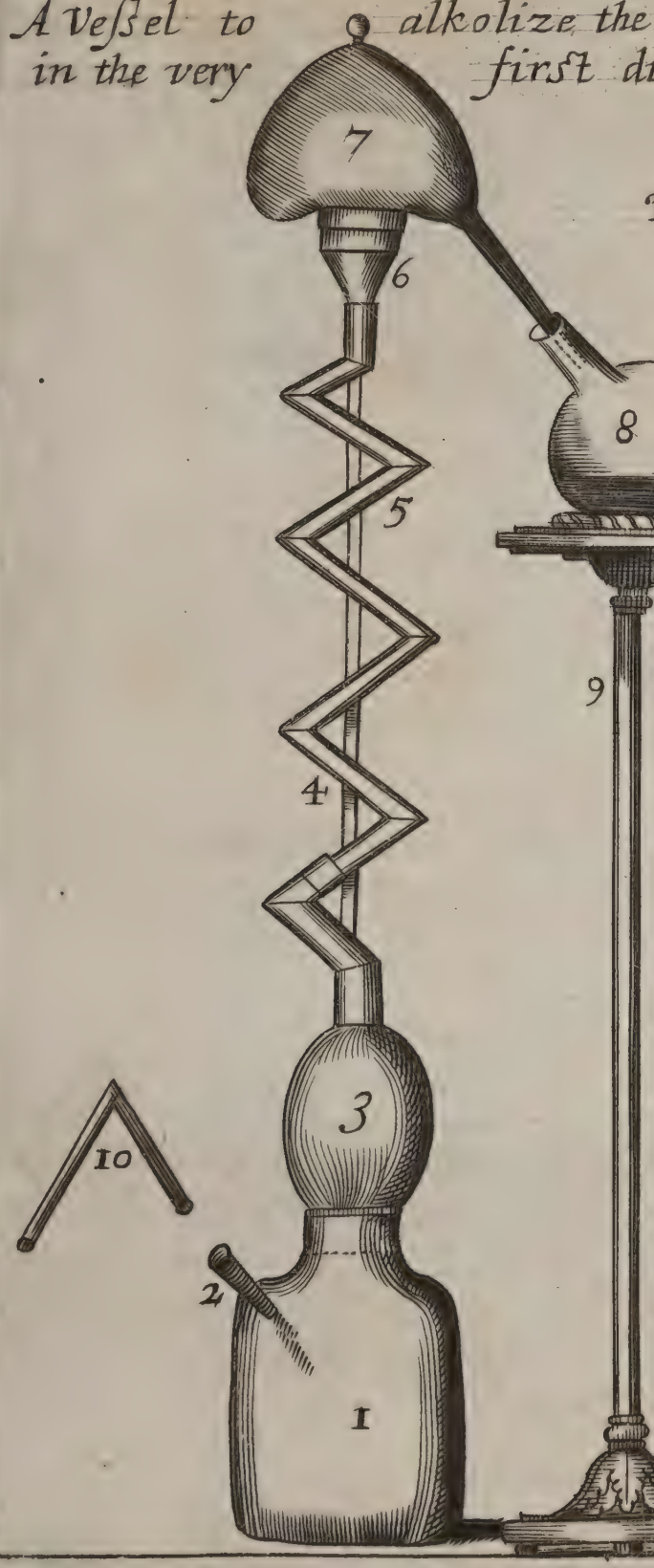
a. the fire.
b. the glasse body for distillation (vesica)
c. the Moores head.
d. the iron bar which keepes vp the glasse body.
f. the Registers of the fire
g. the pipe or nose of the Moores head.
h. the pipe (sometimes worme passing through the barell full of water.
i. Recipiem.
k. the cock to draw out the water when it must be changed.

Furnace and Vessels for the Distillation of Wa... Spirits, and Oyle...

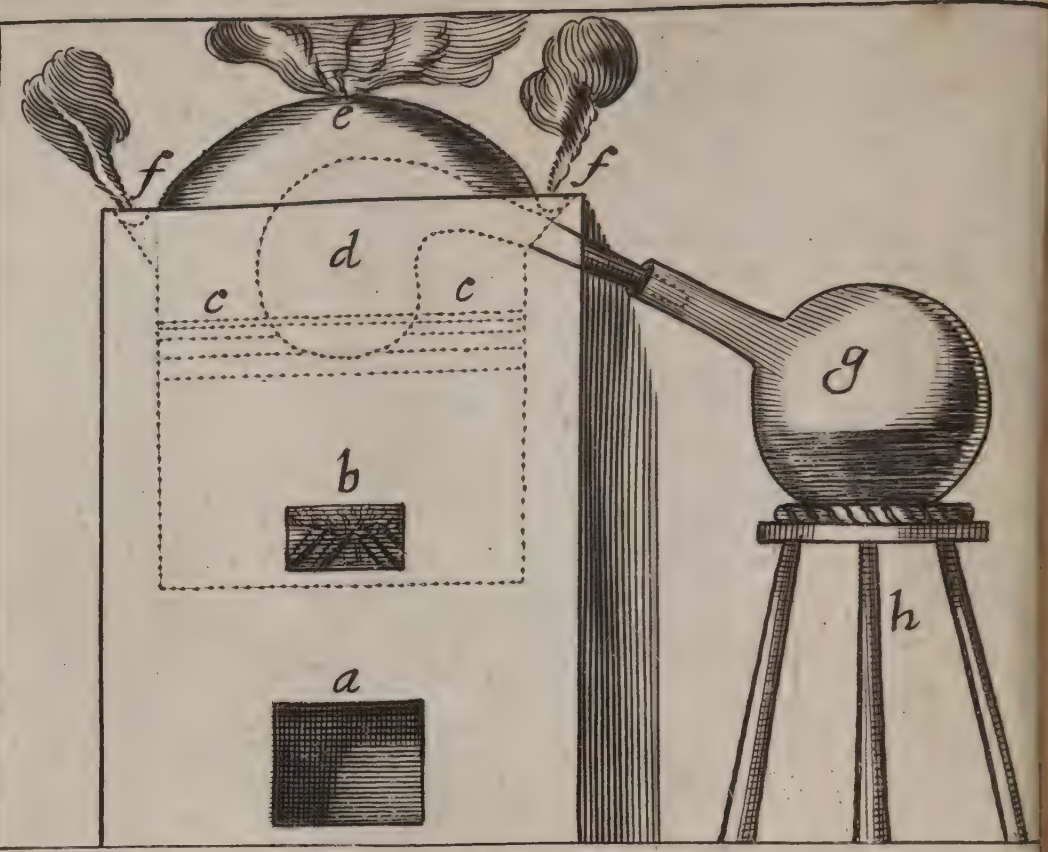
l. a tub to receive the water... out.
m. the barrell or caske con... ning the water to coole and condense the spirits.
n. the prop or support of the ... rel or cask.
1. a stoole or small table to ke... out the recipiem.
2. recipiem with the water to ... separated.
3. Cotton drawing the oyle and ... swiming aboue the water.
4. oyle swiming above the water.
5. a small glasse viall to receive ... the oyle.

A Veſſel to alkolize the Spirit of Wyn in the very first diſtillation.

Page. 89.



1. *Veſſel receaving the Aqua vitæ.*
2. *pipe to putit in.*
3. *the head reaving the ascendig vapour.*
4. *the firſt pece of the crookedpe or worme.*
5. *the secon peece.*
6. *funnel receaving and supportig the ſtill hea.*
7. *the ſtill ead.*
8. *the receaver or Recipient*
9. *a ſtander supporting the ſame Recipient*
10. *an Inſtrumet to empty the ſpirit of Wyn without interrupting the diſtillation called Siphon.*



A Common Furnace for all operations, &c. provided the veſſels be fitted and appropriate thereunto as we haue sayd in the Chapter of Furnac.

a. the aſhe hole.
b. the focus, or fire room with its grate.
c. iron barres supporting the Retort.
d. the Retort.
e. the cover of the Furnace.
f. the holes or Regiſters to ſuppreſs the fire.
g. the receavor or Recipiem.
h. the ſtoole or threefoot table to ſupport the receivor.

Exhalations, Evaporations, Crystalizations, and particularly for Dissolutions in the cold Cellar or open Air.

Those that will employ themselves about true Fixations, shall need the Philosophers Egge, or another Instrument of my own invention, which I cannot call otherwise, then the Egge in the Egge, or *Ovum in Ovo*: It doth something participate of the nature of a Pelican for the Circulation, and of that Instrument which is called *a Hell*, because whatsoever is put in it can never go out again: This Vessel is proper for the fixing of Mercury, and hath the figure of an Egge enclosed in another; so that it is as the Abridgement and *Compendium* of these three Vessels, usually employed by Artists in their work of fixation.

But as the exact description of all these Vessels cannot be so well performed by writing; and that ocular demonstration doth much more advantage the understanding, than reading can do: we have thought fitting in this regard to satisfie the Readers curiosity, by exhibiting in a draught, in the beginning of this Chapter, the delineation and models of the several Vessels spoken of.

Chap. IV.

Of the Diversity of all sorts of Furnaces.

It doth not suffice, that the Artist be provided with Fire and Vessels, he must have also his Furnaces to regulate and govern his heat, and put his Vessels in that degree of Fire, which he shall judge most fitting and convenient for the matter in them contained. Furnaces are Instruments destinated to those Operations, that are performed by the help of Fire, that heat may be as it were kept in awe and bridled, to submit it self to the judgement, skill, and intention of the Artist. They have several names given them, according to the several Operations to which they are appropriated: For, they are either fixt and immovable, or moveable and to be transported. We will only

speak here of the Unmoveable, since they are the most usefull kinde for Chymical Operations; leaving the other to the invention and fancy of those whom their curiosity leads to this noble Art. The matter of Furnaces is threefold; Bricks, Clay, and Iron-work; their form is according to their use.

Every Furnace must consist of four necessary parts, of whatsoever form they be, which are; First, the Hearth or Ash-room, with its hole or mouth, to take away the Ashes falling from the Coals. Secondly, the Grate which receives and keeps up the Coals. Thirdly, the Chafing-dish or *Focus* with its dore to throw the Coals upon the Grate; wherein are the Registers, whereby the degrees of heat of the kindled Coals are ruled and moderated. Finally, the Shop or Laboratory, which must contain the Vessels and matter upon which the work is intended. These are the general heads upon which the matter and construction of Furnaces is grounded; it followeth now, we should say something of their use, and the description of their parts.

We begin by the Furnace commonly called an *ATHANOR*, which signifies a Furnace in *Arabick*, and hath this name given it by excellency, (the figure called by Orators *Antonomasia*) because this Furnace is not only the most usefull of all others, to perform at the same time several Operations; but also because it saves Coals, easeth the care and assiduity of the Artist, and yields a heat easie to be regulated. The *Athanor* is consisting of four parts: The first is the Turret, containing the Coals: The second, a *Balneum Maris*: The third, an Ash: The fourth, a Sand-furnace. The Turret is to have four or five foot in height, 1½ foot square in the outside, and ten inches of empty space or diameter in the inside. It requires an Ash room, with its dore for communicating the Air, and taking away the Ashes, and a dore above the Grate, to cleanse it, and take away the earth and little stones which are sometimes mingled with the Coals, and would stop the Grate, and hinder the passage of Air, and consequently extinguish the Fire. This Turret also must have three open places, each half a foot high, and three inches broad in the three other sides of the Furnace above the Grate, that the heat may by that passage be communicated to the *Balneum Maris*, Ash and Sand-Furnaces, which must be Contiguous to this Turret, and each

of

of these must also have their Ash-hole, Grate, and Dore, to be (if occasion requires) employed severally by themselves without the Turret: These holes must be shut up, with Iron Plates, that are to rise and fall, according to the degrees of fire to be given, to either of these Furnaces. To stop the top of the Turret, there may be fitted a round or square brass Kettle, which may be usefull for several Operations, but specially digestions: This Kettle or Cauldron shall be fitted, and joyn between two Iron bands, the one of which shall be even with the inside of the Turret-top, and the other with the outside, the space between these two being filled with Ashes to hinder the expiration of heat by the said top; and thus the fire shall be forced to drive its heat to the sides, drawn in by the Registers fitted to each of the three Furnaces. And so much shall suffice to give a short explanation of the structure and use of the *Athanor*: for as concerning the form and figure of it, the ingenuous Artist is left to his own liberty.

There is also a *Distillatory Furnace* requisite in Chymical Operations, to which the Copper body, or *Vesica*, is fastened for the distilling of *Aqua Vitæ* or Spirits of Wine, and for other hot Spirits, which are extracted by the help of fermentation; also for the extraction of distilled Oyls, improperly called Essences, and after you have covered the said body with its head, you must joyn to it a Fat or Barrell, with a strait or crooked Pipe (called commonly a Worm) passing through the same, and receiving the vapours droven by the Fire, which are condensed into Liquor in the Pipe, by the cold of Water wherewith the Fat is to be filled.

For those that will operate upon Minerals and Metals, a *Furnace of Cementation* or trying-Furnace is required, which is nothing else but a Round of bricks of one foot diameter in the inside, and eight or nine inches high; wherein, after the first row of bricks is set, which by a good Lute and fire-proof, must exactly be joyned and fastened together, a hole must be left for the bellowes: This Furnace may also serve for Copell and Calcination.

A Laboratory cannot be accounted compleat, without a *Reverberatory Furnace*, which is either close or open; the close is that

in which, *Aqua Fortis*, and spirits of Salts, as Nitre, Vitriol, common Salt, and other things of like nature, may be distilled; the Open, is that which is used for Reverberation and Calcination, by the help of the flame refracted from the backside to the mouth of the Furnace, drawn in by a gap of half an Inch broad, and of the length of the whole Furnace, left behinde the Iron Plate, which contains the matter to be reverberated; and the same flame so reflected, goes out by another gap of the same dimension, left in the fore-front of the Furnace at the top, immediately under its Cover, which ought to be made flat without any Regiller, except the same gap left open before.

Finally, to compleat all, the Artist must have his *Winde-Furnace*, for Mineral and Metallick fusions, Vitrifications, and preparing of *Regula's*; the Grate thereof must be placed upon a Square born by four Pillars only, that the winde and air may have a free admission, and so may be instead of bellowes; the opening between each Pillar of about a foot; and upon this basis, a round Turret of about fifteen inches high, and eight inches diameter in the inside, shall be built; the dore for passage of the Crucibles that are to be put in, must be seven or eight inches broad, and ten inches high: upon this Turret must be applyed a Cover of an Elliptical figure, or Arch-wise, with a Channel above bored with a hole of about three inches diameter, upon which another shall be adapted, three or four foot high, that the action of fire may better concentrate about the Crucible, or other Vessels containing the matter to be melted; the mouth of the dore, by which Crucibles are put in, Crucibles must also be stopt, with a dore of good Clay, made of three pieces.

But because Chymical Artists are not still sedentary, and so cannot be furnished, where they have occasion to work, with all sort of Furnaces, I will here impart a way how to erect one, which may successively be employed in all Operations requisite to this Art; provided the Artist may be furnished with necessary Vessels, and of suitable dimensions to the Furnace, which I will now describe.

Build a Furnace of $1\frac{1}{2}$ foot square, make the bottom of the Ash-room with a brick layd flat, and continue to raise the wall with two bricks, and leave the empty place in the middle, with the

the dore before of four inches height, which are two bricks; then cover the dore with a brick, and compleat the square with the same height: after this set a Grate consisting of seven Iron barres, of the thickness of the thumb, squarely wrought: these barres must be laid upon their edge, that the ashes may the easlier fall thorough, and not suffocate the fire; the distance between each must be of the fore-fingers breadth: and having thus placed them, and fitted their equal distance with Tyles broken, or stones of the same dimension and thickness, and luted all very well together; you must begin to build in a falling wall, leaving only six inches of your Grate open, and lessening every lay of bricks of about three lines, which work is to be continued till you have brought it to be about ten inches high, which space is necessary, as much to contain the Coals, as to leave a play sufficient for the fire; you must leave here a dore also of the same dimension as the Ash-room; this ended, place two Iron-barres of an inch thick, distant half a foot one from the other, and then eeven the wall either with stone, or some other matter of a fit thickness, and then build round three bricks edge wise, that you may have the more room, to put the necessary Vessels for the following Operations.

If you will work with the *Balneum Maris*, take a Kettle or round Cauldron of an equal-diameter with the inside of your Furnace, and of one foot height only, that it may the better be adapted to the Furnace, and the space remaining at the corners of the square, will be instead of Registers to draw, and enliven or remit the heat, according as there shall be occasion. You must also have another Cauldron, with a good strong bottom of Iron plate, but thinner in the sides, made fit to be adapted to the same Furnace; and this will serve for distillations, and for works that require a heat either of Ashes, Sand, or filings of Iron; and if this Iron Vessel was made of Mettle of a Brest-armour Plate, and forged all of one piece, it would also serve for a *Balneum Maris*.

And if you will work with a Retort, you may put an Earthen Pot Cover, turned upside wards, upon the Grate; and fill the hollow of it with sand, to be instead of a Lute, and hinder the breaking of the Vessel, and the too quick action of the fire,

upon it and the contained matter; after which you have no more to do, then to cover the top of the Furnace with an Earthen Pan not leaded, and bored with a hole in the middle, that this hole with the other four angles may be instead of a Register to direct the fire.

If the Artist desires to make use of this Furnace; towards Fusion, Calcination, Cementation, or Reverberation, he may do it also, having taken away the bricks, builded edge-wise on the side-top of the Furnace, as the barres also, to put in his matter more easily and readily.

Thus much we had to say of Furnaces built with Lute and Bricks: there remains only now, to speak something of the *Lamp-Furnace*, used by the most curious Artists for many Chymical Operations. This Furnace must be made of a good *Bolus* and well compacted Clay, kneaded and well allayed together, and then well baked, that the heat of the Lamp may not transpire; and to hinder it the better, the Furnace may after baking be rubb'd and anointed within and without, with white of Eggs reduced to Liquor by a continual agitation.

This Furnace is to consist of three pieces, making in all 21 inches in height, of an inch thickness, and eight inches diameter in the inside. The first piece, which is the basis of the Furnace, must be eight inches high, with a hole of $4\frac{1}{2}$ diameter below, that by this opening the Lamp may be put in, whose diameter is to consist of three inches, and the depth or concavity of two: it must be round, and covered with an Iron plate, bored in the middle with a sufficient hole to contain a link of 12 threds or more, and with six other holes round about, proportioned in an equal distance from that of the middle. The second piece is to be of seven inches height, and fitted and adapted to the first, having four earthen jets or handles of about an inch long, springing out of the Wall-work, to hold up an Earthen or Brass Vessel of six inches diameter, and four high, to make a *Balneum Maris*, or a *Capsula* for ashes or sand, as occasion requires. There must also be in this second piece or part of the Furnace two holes opposite the one to the other, of $1\frac{1}{2}$ inch diameter, fitted with two Glasses of *Venice* Crystal: these two holes must be made between the height of the fourth

and

and last inch of the height, to be instead of windows, to discover thereby the better the various colours, in the Operations and Dissolutions made by the Artist, opposing a lighted Candle to the side you are to look in the Vessel in which the matter is contained, lying interposed. The third piece or part of the Furnace must be six inches high to compleat the total height of 21. made archwise, or hemispherical, and bored on the top with a hole of an inch diameter, receiving several pieces of three lines apiece, growing still narrower till they end in a pyramidal knob which shall close up the last: There must also be four other like holes made between the height of three or four inches, equally distant one from the other: these holes are instead of Registers to the Lamp-Furnace, whose heat is also partly governed by the encreasing or relenting, which the approach or removal of the flame in the Lamp doth cause, (whose support must be made with a round piece of Wood, fastened or applyed to a skrew, whereby it shall be raised or depressed at the will of the Artist,) as also by putting more or less wieks to burn in the Lamps; and augmenting or lessening the number of threds in the wieks, the heat is multiplyed or lessened, according to the nature of the Operations. But he that will proceed with more nicety in observing the exact degrees of heat, must have recourse to the *Thermometer* (commonly called *A Weather-glasse*) wherein the water inclosed, doth by its raising and depressing, exactly shew the degrees of heat. The Oyl which is to be imployed for the feeding of this Lamp, may be rectified upon fixt Salts made by Calcination, that they may yield less Soot, and display their action more vigorously, since that rectification takes away their excrementitious humour and superfluity. The wieks must be made of Gold, *Alumen plumæ*, or *Amiantho's*, which is a Mineral found in the Island of *Elba*: to which in case of necessity may be substituted the Marrow or soft Cotton found in the middle of Elder, or Reed, very well dried; and this must be changed fresh every 24 hours: for which cause it is necessary to be provided with two Lamps, to succeed one the other, that no intermission may interrupt the action of heat. If you make use of the marrow or heart of Elder, there must be a little sharp piece of Iron, or a Wyer sharpened, fixt and sodded in the bottom of the Lamp,

that

that may answer the middle hole of the Cover which is to contain the wiek.

The figures of all these several Furnaces are exhibited in the Cut, following this Chapter. We add only two words concerning the Instruments necessary to the managing of the Furnaces, as Pincers and Tongs to take away the Crucibles, a crooked Scraper to cleanse the Grates, an Iron Shovel to take the ashes away: There must also be an Iron Conical and hollow Vessel, well sodded and staunch, for projecting the *Regula's*, the Model whereof may be taken in the figures of Glass Vessels.

Chap. V.

Of Lutations.

HAving described the variety of Vessels, and their use, as also the diversity of Furnaces, it followeth we should speak of all the kindes of Lutations, both of Lutes belonging to the fabrication of Furnaces, as of that which is used for the preservation of Vessels, and to repair their cracks and fractures, as also to joyn them again together.

That Lute which is fittest for the construction of Furnaces, is to be made with red Clay: not too fat, lest it be subject to chinks; nor too lean or sandy, lest it binde not enough. This Clay must be wrought in Water, wherein store of Horse-dung and Chimney-soot hath been steept and well mingled, by which a Salt is communicated to the water, binding the Clay, and making it fit to abide the Fire. But if you will make use of this kinde of Lute or Clay, to arm, or spread about the Glass or Earthen Vessels, which are exposed to the open Fire, you must add common Salt, or the *Caput mortuum* of *Aqua Fortis*, beaten or grinded Glass, and scales of Iron falling from the Anvil in Smiths Forges; and you shall have a Lute so resisting to the action of Fire, that it will be impenetrable to vapours, insomuch as it will serve instead of the Retorts when the length and violence

lence of flaming Fire, which is usually given at the end of Mineral Operations, hath melted the Glassen ones.

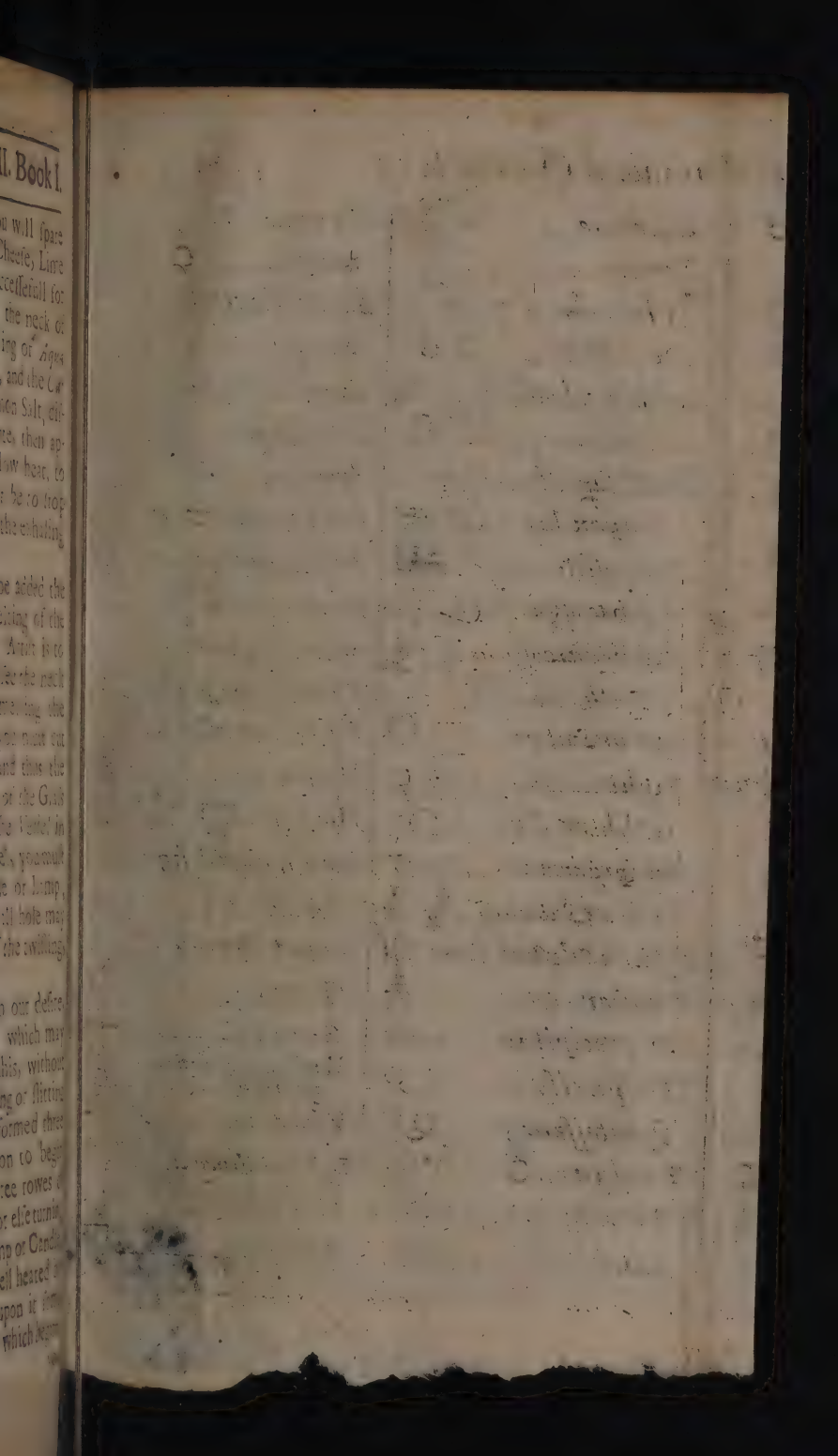
When we have spoken of Vessels, we have mentioned some that ought to be joyned together for one Operation, and said that it is necessary, when the substances wrought upon are subtile, penetrating and æthereal, that their meeting may be very exactly luted. There are then three kindes of Lute observable, for the joyning of Vessels together, when they are not exposed to open fire. The first is, that Lute which is made with white of Eggs, beaten and reduced to water by a long agitation: therein dip Fillets of Linnen, and spread the powder of unslackt Lime subtily beaten, then add another fillet of dipt Linnen, and spread powder again, and so continue and re-iterate this three times; but note, that the Lime powder must never be mingled with the water of Eggs, because the secret fire of the Lime would burn and harden it, though many Artists do fall into this error; you may also dip in the same Whites of Eggs, Swine or Ox Bladder, without making use of the Lime, principally in the rectification and alkoholisation of fiery Spirits, extracted out of fermented substances. The second kinde of Lute is made with white Starch or baked Flower, and made into Pappe with common water: this kinde of Lute suffices for luting Vessels which contain less subtile and penetrating substances. The third, is nothing else but Paper cut in Fillets, folded and dipt in water, applyed to the top of *Cucurbites*, both to hinder that the head may not offend it, and prevent the exhaling of vapours. This manner of Lute is only used in evaporating and drawing of some inconsiderable *Menstruum* or of small worth, and which may not serve again for another Operation.

There must also be another kinde of strong Lute, made to remedy the cracking of Vessels, and joyn them together, when they are to suffer a violent heat; of this there is two sorts. The first made with Glass reduced to very subtile powder, *Karabe* or yellow Amber and Borax, allayed with the Mucilage or water wherein Gum Arabick hath been steept, and so applyed to the joynts or meeting of the Vessels or their Cracks: and after it is well dryed, you must run with a red hot Iron gently over it, and it will give it a fast sodering and almost perfect union of the

chinks or cracks of the Veſſels together: But if you will ſpare ſo much trouble, make your Lute only with ſoft Cheeſe, Lime and Rye flower; and you ſhall finde it no leſs ſucceſſefull for this purpoſe by experience. But if you will cloſe the neck of a Retort, and fit it to its Recipient, for the diſtilling of *Aqua Fortis* and Spirits of Salts, uſe only common Clay, and the *Caput Mortuum* of Vitriol or *Aqua Fortis*, and common Salt, diſſolving the Salt in water, and mixing well your Lute, then applying to the place, give it time to drye with a ſlow heat, to avoyd chinks; which if any happen, your care muſt be to ſtop them leaſurely as they are made, and hinder thereby the exhaling of volatile Spirits.

To all theſe kinde of Lutations may very well be added the *Hermetical Seal*, which is nothing elſe but the melting of the Glaſs in the neck of the Veſſel, to which end the Artiſt is to give by degrees the heat of Fuſion; and when you ſee the neck begin to yield and encline by the force of fire melting the Glaſs, with ſtrong Cizzers ready for the purpoſe, you muſt cut the neck of the Veſſel where it is moſt melted; and thus the parts compreſſed, do as it were unite the the edges of the Glaſs inſeparably: But if you would rather cloſe or ſeal the Veſſel in a ſharp end, twiſting by degrees the neck of the Veſſel, you muſt after expoſe the ſmall end to the flame of a Candle or Lamp, to frame thereby a little knob, wherewith that ſmall hole may be ſtopt, which moſt commonly remains at the end of the twiſting, and is almoſt imperceptible.

Now as the Veſſels are not ſtill framed according to our deſire, and that ſome parts are often to be taken away, which may hinder the Operations; we muſt alſo declare, how this, without endangering the Veſſel may be done, *viz.* by breaking or ſlitting the Glaſs equally by a thwart line: This is performed three ſeveral wayes; as either by applying a red hot Iron to begin the ſlit, or twiſting about the neck of the Veſſel three rowes of thred dipt in Brimſtone, if it be ſtrong and thick; or elſe turning the Veſſels part you would ſlit to the flame of a Lamp or Candle, if it be a thin and ſmall Glaſs; and when it is well heated by any of theſe three ways, wipe it off, and throw upon it ſome drops of cold water, which will cauſe a Crack; the which begun, you



Steele iron or mars ♂
Loadstone ♌♌
Ayre △
Lymbeck ⚹
Allom ○ ⏢
Amalgama ♯
Antimony ◇ ♁
Aquarius a signe of the zodiack ≈≈
Silver or Luna ☾☽
Quicksilver or Mercury ☿
Aries another celestial signe ♈
Arsenich ○○ ♀
Balneum B
Balneum ⚍
Maris MB
Vaporous ⚍
Bath VB
Libra another celestial signe ♎
Borax ♅
Bricks ▨
capricornus another celestial signe ♑
Cancer ⚍
another ♋
Ashes ⊣E
Pot Ashes ⊔
Calx C
Quick lime ♆
Cinnabar or Vermillion ♆
Waxe ⊹
Crucible ☩ ▽
Calcinated copper
æs ustũ or crocus veneris ⊕♀
☿ ♃ ♄.
Note of Distillation ♍
Water ≈≈ ▽
Aqua fortis ▽'
aqua Regalis ▽☌ ▽☌
Spirit —⊹
SP.
Spirit of Wyn ▽ ◇◇
Tinne or Jupiter ♃
Powder of Bricks ▨
Fire △
Gumme ♄♄
Hower ♡
Oyle ☩ ○○ ♐
Day ☌☌
Gemini a celestial signe ♊
Leo another signe ♌
Stratũ sup Stratũ or lay upon lay SSS ≡≡≡
Marcassite ⚔ ▬
Precipitate of Quicksilv ☿ ☿
Sublimate ☿ ☿
Moneth ☒
Niter or Salt peter ◐
Night ☾☾
Gold or Sol ☉
Auripigmentũ ○○
Lead or Saturne ♄ ♄
Pisces a celestial signe ♓
Powder ♇
To precipitate ⚍
To purify ☌☌
Quintessency QE
Realgar ♂☌☌
Retorte ⚗
Sand ▲
Crocus ⚍
martis ♂ ♢
Sagitari. a celestial sign ♐
Soap ◇
Scorpi. a Celestial sign ♏
Salt alkali ☐ ☌
Armoniac Salt ✳
Comon Salt ⊖ ⊕ ☿ ▯
Salgemme ◇ ☌
Brimsto or sulph ⏢ ⏢
Black sulphur ☌
Philosophers sulphur ⏢
To sublimate ⚍ ☌☌
Talck X
Tartar ☐ ⚜ ♐
Taur. a Celestial signe ♉
Earth ▽
Caput Mortuũ
Tuty
Glasse
Vert degrice or flower of Copper ⊕
Vinegar X ☩
Distilled Vinegar ⁂ ☩
Vitriol ⊕
Urine ⊡

you may continue at your will, and draw where you please to the very end with a lighted Match, blowing upon the Coal or lighted part of it as you go along, to heat the Glass, and this way you shall never run danger of losing your Vessels.

Chap. VI

Of the Characters and Terms used by Chymical *Authors.*

As the ancient were wont to conceal under shadowes and obscurities the secret mysteries of Nature, for fear the ignorant Vulgar should prophane Sacred Philosophy; so *Hermetical Philosophers*, which are *Chymists*, have used the same caution, to prevent their Doctrine from growing too common, and the prophaning of her admirable mysteries: For this reason have they made use of Hieroglyphical Characters, as also terms of Art not in use amongst others, to express several things which do concern the Essence of it, in the Practical or Theorical part: And for this cause have we thought necessary to explain, as much as in us shall be, the signification of those abstruse and obscure terms, that when curious Artists shall finde them in Authors either Ancient or Modern, they may receive thereby no distaste nor stop to their purposes: being confident, that what we say, shall suffice and give light enough, even to the youngest Chymists, to introduce them into the right understanding of all the Books treating of this noble part of Philosophy.

Hermetical Philosophers, besides these characters, involve their Doctrine under several obscure terms, which seem something strange to the Novices of this Art, wherefore we will give a short explanation of some few of the most abstruse sort, whereby the others may receive an easier light. So they have called *Lili*, the matter by them used for some excellent Tincture, whether Anti-

mony, or any other: *Aqua Fortis*, the *Ostridge's stomack*: Armoniack Salt sublimated, *the spread Eagle*: The Tincture of Gold, *the red Lion*: That of Vitriol, *the Green Lion*: The Mercury sublimated, corrosive, and Antimony, are their *two Dragons*; the Butter of Antimony, the poysonous Foam of the *two Dragons*: The Tincture of Antimony, *the Dragons Blood*; and when this Tincture is coagulated, they have called it, *the Wolfs Jelley*. They also name that redness, which in the distillation of Nitre appears in the Receiver, *the Blood of Salamander*. The Vine is called by them, the Great Vegetable; Tartar, the Excrement of the Juice of *Janus*'s Plant: And so have they several other names, more or less Enigmatical, which we will not gather up here; partly because it might prove both tedious and needless; as also that by assiduous reading and practice, (which are the two best Clues to lead us out of this labyrinth) they may easily be conceived and understood. Thus shall we with this Chapter put a conclusion to this Book, to enter into the second of our Second Part, wherein we shall give a free and ingenuous description of the manner of working, and preparing remedies, as also of the excellent uses, to which they may be applyed.

The

The Second Book OF The Second Part.

Treating of Chymical Operations.

Chap. I.

Of such Observations as are necessary for Separating and Purifying the first Five Substances, after they are drawn from the Mixts.

FIRE is a potent agent, and an equivocal cause, which easily drives upwards, evaporable, sublimeable, and volatile Substances, such as are Phlegm, Spirit and Oyl. Phlegm, or the wateriſh part; because it ſticks not very much to the other Principles, doth aſcend the firſt; and for this reaſon, there is but need of a ſlow fire to extract it, whereas for the Oyl a ſtronger is required, by reaſon of its clammineſs and viſcoſity, and its union with the Salt; and for the Spirit, it requires yet a more vio-

lent fire, by reason of its waight, Spirits being nothing else but open Salts, as Salts exchangeably nothing but closed and compacted Spirits. Sometimes the Phlegm, Oyl, and Spirit, do confusedly ascend with much Salt, by the great violence and vehemency of Fire, and some time much of the Earth is also sublimated with these Substances; as it may evidently appear in the Soot of Chimneys, from which the separation of the five Substances may easily be made.

The Phlegm then, which is the first ascending, may be separated with the heat of a luke-warm Bath, or some other analogal heat; it may be severed from the Oyl, by the Funnel, because it swims above: but from the Spirit it must be separated by the heat of *Balneum maris*, or some such like: for, that heat is capable to elevate the Phlegm, but cannot drive upwards the Spirit by reason of its waight; to that sublimation a stronger fire is required, as that of ashes, sand, or filings, or some quicker heat, according to the nature of the Spirit.

The Salt and Earth are not very strictly united, wherefore they may easily be separated by the help of some aqueous liquor, which is the fittest *Menstruum* to dissolve Salts, and separate them from the Earth: and as the Earth by its nature is indissoluble, it precipitates it self into the bottom by its own weight: The Salt being thus separated, the Lye must be filtrated, and the *Menstruum* evaporated in Glassen Vessels, White-Earth, or Jugge-metal till it skins, then expose them to the cold to make it shute into Crystals, and so include it in Glassen Vessels well stopt, to hinder their melting, by the attraction of the moisture of the Air.

But you are to note, that the fiery, or hot Spirits, drawn from fermented Substances, are lighter yet then the Phlegm, and so ascend the first in their distillation or rectification. A very familiar and remarkable example is obvious in the making of Wine: for, if you take it to distil in the Must before it hath fermented, nothing but Phlegm will ascend, and the Spirit shall remain, joyned and incorporated with the essential salt of liquor, which shal thicken into an extract very sweet and pleasant: But, if you stay your Distillation after the Fermentation is perfected in the Cellar, you shall draw first the hot burning Spirit, which the Phlegm shall follow,

low, and in the bottom nothing shall remain, but an ungrateful and unsavoury extract, because the essential Salt of the Must, hath been volatilized into Spirit by the action of the fermentation.

The difference of Vessels and several degrees of Fire, are also very useful to separate and joyn again these several substances, after they have separated assunder: for the bond of their union being once broken, each takes its place by it self; but the fire intervening, reduces all into vapours and exhalations, which according to the diversity of Substances are received by the Artist in several Vessels. Thus is the Spirit easily separated from the the Oyl by the funnel, whether it swims on the top, as the Oyls of Flowers and Seeds are used to do; or whether it sinks in the bottom, as doth the Oyl extracted from aromatick Substances and Woods. But nothing but a great and violent heat can separate the Salt from the Spirit, by reason of the great sympathy they have together; when it is noted, that Salts must be made use of in the fixing of Spirits, and Spirits reciprocally to volatilize Salts.

From what we have already said above, every one may of himself make several fine reflections and considerations, touching the distillation of Mixts abounding in Salt, Spirit, or Oyl, or any other mediane Substance between these three. But it must be noted, in general, that Animals and their parts require in the operations made upon them, only a very slow heat, because they are compounded of a very Volatile Oyl and Spirit; and that Vegetables and their parts need a heat of a more exalted degree, according to their more or less affixation; but Minerals, and chiefly all the family of Salts, require the greatest and intensest heat.

When the Oyls and Spirits ascend with the other Substances confusedly together, they must be rectified, that is to say, purified by a re-iterated distillation. But a slow and gentle fire draws easily away, and separates assunder the Phlegm and the Salt: the Salt hides himself in the bosom of the Earth, and forsakes it not till the Spirit and Oyl be separated by augmentation of fire, which by the violence of its action disunites finally the compound, and that done, there must be water poured upon the Earth (commonly and improperly enough called the *Caput mortuum*) to dissolve and

and separate the Salt: which done, you are to evaporate the *Menstruum*, & in the bottom of the Vessel, you shall find are transparent and Crystalline Salt, if the Salt be an Essential Salt which followeth still the nature of niter, provided you leave a portion of Phlegm, that the Crystals may shoot therein: but, if the Salt be an *Alkali* made by Calcination, you must evaporate Phlegm dry, and you shall find the Salt in the bottom in the form of an opacous and friable stone.

All these Observations are very necessary to be noted in the practical part, because oftentimes the Artist hath need but of one of these Substances separated from the others: therefore he must be skilful in separating the one from the other according to his present occasion, because the desired and lookt for operation is often missed, and impedited by a connexion of the associated principles, when they are yet joyned one to another: for one part of the Mixt may be astringent and coagulating, when the other shall be incisive and astringent, according to the variety of principles that compound the same: and these parts so joyned together, are hurtful, and contrary one to the other, so that when you intend to dissolve, you must know, and be capable to separate the dissolving principle by it self, as you must reciprocally take the coagulating principle to coagulate.

The first Distillations are ever tainted with some impurities, and for the most part have a touch and savour of *Empyreuma*, chiefly those that without addition of any *Menstruum*, are made with the heat of a violent fire: as the Oyls drawn by a retort, which are thick and filled with some portion of the Volatile Salt of the Mixt, and sometimes of the fixt Salt driven up by the extreme action of fire. Therefore an Artist must be skilled in separating these different parts; for, if the extracted Oyl be filled with these impurities, or hath acquired an Empyreumatical odour, it must be rectified upon *Alkalis*, such as are Tartar, or Vine-ashes, or ashes of any Wood; for, the sympathy which is between Salts, will cause them to joyn together; or to speak more Philosophically, the fixt Salts will kill the volatile by their action, they being commonly sharp and acid, and so shall the Oyl ascend clear, subtile, defecated, and without that smoaky Odour which the Volatile Salt carries along with it, as a kind of smoak: And if the first Rectification be

be not sufficient, it shall be reiterated upon other Salts, or upon that which hath already been used, provided it be before hand made red hot in a Crucible, to take away from it, that ill odour and impurity which it had contracted in the first Rectification.

The impurities of Spirits must be separated by rectifying them upon Earths deprived of all Salt, or upon Ashes, whose Salt shall be washt away by Lyes: because, if you did rectifie them, upon bodies that were impregnated with any Salt, the Salt should fix and keep to it self some part of the Spirit; or, if the Spirit was stronger, it would Volatilize the Salt, and carry it along with it by Sublimation, because of their mutual sympathy which binds and unites them very strictly together.

Those that have been ignorant of this doctrine of Action, Reaction, and the several Fermentations incident to Chymistry, by the means and mixture of Salts and Spirits, have grosly erred and committed irreparable faults, as it may be observed in the reading of Chymical Practitioners.

Volatile Salts may be purified by dissolving them in their own Spirits, after which they must be filtrated to separate their heterogeneous Substances, and then drive them through low Cucurbits or Retorts with a wide neck: and thus shall two operations be performed at once, by rectifying the Spirit, and subliming the Volatile Salt, which is nothing else but a coagulated Spirit, or a mean substance between Salts and Spirits, by the mixture of a small portion of internal Sulphur of the Mixt whence it is extracted.

Concerning Essential Salts, such as those which are extracted out of green and juycy Plants, where Nitre or Tartar are predominant, which contain in themselves the principles in which resides the Essence and chief virtue of the Mixt, they must be purified either with distilled Rain-water, or the water distilled from the juyces of the same Plants; then percolate those dissolutions through common Ashes, or such as will be made, by calcining the Cakes of the Plants remaining after the juyce is drawn: that it may be instead as it were of a filtration, to remove the terrestriety and clammines, which might hinder the Crystallizing of the Salts; then evaporate what is percolated to a fourth part

of the whole, and expose it in a Vessel in the cold, that the Saline substance contained in the liquor may shoot in Crystals.

As for the Salts, *Alkali* or Fixt; made by Calcination, they must be purified by reverberating the Ashes, until they become gray or whitish, then make a Lye thereof, filtrate it, and evaporate, till it be dry; and if it be the Salt of any Plant distilled, reiterate the dissolution of that first Salt in the proper water of that Plant, that the Spiritual and Essential Salt of that Plant which is in the water, may joyn with the fixt Salt, which shall be as a *Magnes* to it, and encrease its vertue; as also it will hinder the said Salt from melting so easily when exposed to the open Air, as it would otherwise; the Salt having been thus prepared, must be exposed in the cold to Crystallize, after evaporation hath been made, till a skin covers the liquor: but if it be a Lye only, it must be evaporated, till it be dry, having first been filtrated.

From all that is said above, it may easily be conceived, that no labour nor care is to be spared, to separate and purifie all these divers Substances, since it is absolutely necessary; lest the one should prove opposite and contrary to the other, and so hinder the use and operations of our most noble Remedies, according to the true Indications of Physick: for these Substances being joyned yet together, do often more hurt and prejudice then they do service: and this mixture doth hinder, that the Preparation doth not operate (as we do intend) according to the extent of the Salts vertue, or of the Oyl and Spirit, because the faculty and vertue of one of these things, is blunted and depressed, by the Viscosity or the drought of the other. And all these general hints and directions may be applyed to all Chymical Preparations, which are not only made upon Animals and Vegetables, but also upon Minerals; and as much for those that work upon Metals, as for those which only seek Remedies for the ennobling of Physick; or such as only work for satisfaction of their Curiosity, and the trial and examination of Physical Truths.

CHAP.

Chap. II.

An Apology in the behalf of Chymical Remedies.

I Thought it necessary to vindicate the Professors of this noble Art, from the calumnies and aspersions which ignorant persons do cast upon it, before I come to describe the Preparations of those Remedies which are used by true Physitians; to arm with Reasons and defensive Arguments the Lovers of this Science, against the weakness of their Adversaries. I say, that these despisers of Chymists, and haters of Chymistry, are ignorant; because not only unacquainted with the true Preparation and Effects of these Remedies; but moreover ignorant in the knowledge of Nature and its Operations, which only can be discovered by those that work upon natural Products, and do exactly and curiously Anatomize all the parts which they contain in particular.

But before we come to quote the reasons of both parties, *Chymists* and *Galenists*, in the controversie between them; we must before all things, find a competent and capable Judge to decide the Question: that is to say, a Judge that may be throughly acquainted with their Opinions. For it would not be possible for a *Galenist*, to blame and lawfully refute the Theory and Practise of Chymistry, unless he be fully acquainted with their doctrine.

But, that no body may be scandalized at our Discourse, you must know, that there is a great difference between the *Galenists* and the Doctrine of *Galen*; and that Chymistry doth not undervalue this Author, knowing very well, with what desire he was possest to attain to the knowledge of this Art, having with great avidity and longing sought for that Art, which should teach him how to separate the several Substances, of which Mixts are composed. But many at this day do profess, and take upon themselves the name of *Galenists*, which never were acquainted with his works; and boastingly pretend to follow the Doctrine of *Hippocrates*, which never did examine his practise. We must then call *Galenists*

those which are only Physitians by name, and who after they have perused some University Writings, which do perswade them, that, Physick is nothing else but an art of discerning heat and cold, immediately take upon themselves the practice, and fill their discourses with nothing else but notions of Heat and Cold; and all their skill tends to speak upon the more or less of these qualities. But the learned *Fernelius*, who was the Ornament of his Age, doth confess and evidence, after having acknowledged this Error, that besides these first qualities, there are many other vertues hidden in the Mixts, as it evidently doth appear towards the end of his second Book, *De abditis Rerum Causis*, where he teaches how the Seminal Vertue contained in Compounds, and which really is the seat of all their activity, must be extracted.

We must then take for judge of this Controversie *Peripatetick Philosophy*, provided it be seasoned with the noble knowledge both of *Galenical* and *Chymical Physick*, that none may be judge and party in the same case; to this end, all prejudices which might be entertained concerning either of these Arts, must be laid aside, and submitted to the trial of Reason, which is the Touch-stone by which the truth or falsity of all Learning is discovered.

The *Galenists*, such as we have spoken of above, do first blame the Remedies prepared by Chymical Art, for three reasons: The first, because these Remedies cannot be wrought but by Fire. The second, because they are extracted from Minerals. And the third, because their Action is too violent. To these heads, we answer in order, and say first, That if whatsoever passes through fire, and cannot be prepared but by it, was to be blamed, it would go ill against the Cooks, who without it can dress no meats; and those very Apothecaries, which according to their Prescriptions, prepare their Medicaments, would stand in opposition to their exceptions. Secondly, that all Chymical Remedies are not extracted from Minerals; though it may objected to them, that they use them in their own Dispensatories; but that the greatest and best part of the choysest Chymical Remedies are taken from the family of Vegetables and Animals. And for the third point, we say, That if any Chymical Remedies have a violent action, and the Chymical Physitian doth make use of them in desperate and refractory diseases, he doth nothing in this case, that *Hippocrates* hath

hath not done, who made frequent use of Hellebore, the violentest of all Vegetables: If they object, that this great Physitian made use of this Remedy only for want of a better; it may be as rationally answered again, that Chymical Physitians neither do use these violent Remedies, but in desperate Diseases, and that because *Extremis morbis extrema remedia conveniunt.* To say, that all Chymical Remedies are violent, is an assertion of ignorance; for Chymical Artists do prepare them with so neat and in so necessary a manner, that they become by it pleasanter to the taste, more salutiferous to the body, and less hurtful in their operations. And it is in this properly, That Chymical *Pharmacy* doth differ from the *Galenick*, which prepares also in a manner Medicaments, and doth pretend to correct the vices and violence thereof; but not with that requisite nicety and perfection, as to separate Purity from Impurity, and Homogeneous from Heterogeneous Substances. For, who will not confess, that a Patient will rather take some few grains of Magistery of Jalap, or a Pill of some Panchymagogical Extract; or finally, a very small dosis of well prepared Mercury, which may be wrapt in some Conserves pleasing to the tast, or delicate Jelleys, or finally, be dissolved in some pleasant Liquor, then to swallow a *Bolus* of five or six ʒ of *Cassia*, or double *Catholicon*: that he will more resolutely take three or four grains of some Sudorifical Specifick, as Bezoard Mineral, then to swallow a full glass of some Theriacal Dissolution, or *Opiatum Salomonis*: That he will look with a better Eye upon a Broth wherein 1 ℈ of Vitriolated Tartar shall be dissolved, then a great Glass of *Apozem*, or some Magisterial Syrup after the old way, the Receipts or Prescriptions whereof are commonly of the length of one foot and a half.

But it will be moreover objected, That although Chymists do cry up the sweetness and pleasantness of their Remedies; they must nevertheless confess, that there is in them more danger then in others, because they are extracted from Minerals. It is confessed, that many Remedies in Chymistry are taken from the Family of Minerals: But for all this, it must not, nor cannot be granted, that they are venemous, or contrary to the nature of Mans Body, and to affirm it, is the height of ignorance. For if ancient Physitians, have used them raw, as they were, and with-

out any Preparation, as may be seen in *Galen*, *Dioscorid*, *Pliny*, and several other Authors; If modern *Galenists* have also imployed them, as *Rondeletius*, which in his Pills against the Pox uses crude Mercury; *Mathiolus* who hath put in practice Antimony, which by excellency he calleth *Manus Dei*; *Gesnerus* hath done the same with Vitriol; *Fallopius* with the filings of Steel; and *Riolanus*, and many others, with Brimstone, for Diseases of the Lungs: Why shall Chymists be debarred from the same Remedies, after they have prepared, corrected, and devested them from the malignity and venom which they did contain, by the separating of Purity from Impurity? which is much a better way then the pretended correction of *Galenists*, who indeavour to mitigate the vices and malignity of Mixts, used by the Ancients and Moderns also, by the addition of some other Substance, which may have, and really hath, in it self its particular Vice and Impurity: as it is obvious in Hellebore, Spurge, Scamony, Coloquint or bitter Gourd, Agarick, and some others, which they pretend to correct by a simple addition of Mastick, Cynamon, Cloves, Gum Dragant, and Ginger. But to show the manifest difference between this Correction and that of Chymists; we may use the vulgar comparison of an unskilful Cook, which to dress a savoury and delicate dish of Tripes, should think it enough to boyl them with odoriferous Herbs and good sents, without washing and clensing them from their inward filth.

Again, the *Galenists* will instance, and say, that Chymical Remedies, by reason of their sharpness and acrimony, are not to be trusted. But to that we answer, That if the use of sharp things must be banished from Physick, it must with more reason be forbidden in Food, and so consequently all dishes and ragouts wherein Salt, Vinegar, Verjuyce, Leek, Onion, Mustard, Pepper, and all other kind of Spices are Ingredients, must be excluded from the Kitching use, as well as many Medicines blotted out of Antidotaries. Neither do they perceive, that by this argument, they thwart *Galen* himself, who hath placed Cantharides among mortal Medicaments, by reason of their corrosion, particularly upon the Bladder; he doth notwithstanding ordain them, and so do his Sectators prescribe them, though in some small quantity, in some convenient liquor, to provoke Urine; to which end and purpose he doth highly commend them.

The

The same do Chymists use to do, who give their sharp Remedies in some proper and specifical Liquor, to produce such Effects as they hope from their Medicaments. But to stop fully the *Galenists* mouth, we must prove that they use in their common practice, though Empirically, Chymical Remedies, whether they be natural, or artificial, as for Example: Do they not make use of crude Steel and Mercury, and many more natural Mixts without preparation? Do they not use Spirit of Vitriol, Spirit of Sulphur, Mineral Crystal, Cremor and Crystals of Tartar, *Crocus Martis* aperitive and astringent, Salt of Vitriol, *Saccharum Saturni*, or Sugar of Saturn? And though most of them be unacquainted with Antimony, and the true time and method of exhibiting this admirable Remedy; yet nevertheless do they give it in stealth to their Patients, disguising it oftentimes with some infusion of Senne, or some portion of their ordinary Pills; for they mix Emetick Wine in their Infusions, and Emetick Powder in their Pills. But, that which is yet more to be noted, and considered, is, That when *Galenists* by the obstinacy of the Disease, are at a stand, and can no longer find in their method a Remedy to cure, and eradicate the evil of it, because they never attained to the perfect knowledge of it, they use to send their Patients for a last refuge, to Baths and Mineral Springs: which practice of theirs, makes them tacitely to confess, that there is in Minerals a more potent, penetrative and active Vertue, then in any other of those Remedies, which they did put in practice before.

This Truth is further confirmed by those Remedies which Chyrurgions do daily use with very good success, being for the most part compounded of Metals and Minerals; but those principally which do work with more efficacy. It is true, that Chymists do likewise send their Patients to Mineral waters, and enjoyn them the use of them: But there is this difference, between them and *Galenists*; that the first are distinctly acquainted with the Sulphur, Salt or Spirit, which predominates in the Waters by them prescribed; which the others do not, having but a confused and superficial knowledge of the Vertue residing and hidden in these waters; and prescribing them only, because others have used them before, not being capable to ratiocinate upon the Effects by them produced, much less to prove the Efficient Internal Causes:

causes of the same; since it belongs properly to the search of Chymists, whose peculiar work it is, to anatomize Mineral Waters, and demonstrate what Fire, or Volatile Substances, are contained in them: And if the ingenious Artist finds not himself fully satisfied with examining the Waters, he must further extend his inquisition in working upon the Earths adjacent to those Mineral Spirits, and endeavour to discover what Metal most abounds in the *Marcassites* growing about that place: that done, it will be easie for him to find what Salt, or what Spirit is the most fitting to dissolve that Metal, and to unite and mix it so indivisibly as it is, with the water: and being thus instructed, he can never fail to assign pertinent and demonstrative reasons both of the effects and cause of the vertue and efficacy of those Mineral Waters. If it be answered, that *Galenists* do also give the reasons of such effects, and assign them to the Salt, Sulphur, or Spirit predominant in these Waters; I reply, that they shall never fully satisfie a curious inquisitor and searcher of truth in Nature, by their reasons taken from the Doctrine of the Schools: But, that they must have borrowed this light from Chymical Authors, and so far they are no more a *Galenical* Doctrine; since they reason only upon the grounds, and by the Organs of Hermetical Philosophy. Let us then conclude in the behalf of Chymical Remedies, and say, that they are the true weapons, wherewith a Physitian must arm himself to conquer and extirpate the most stubborn and rebellious Diseases; and even such as are held incurable by the ordinary Remedies of *Galenical* Physick; and so we conclude this short Apology in the behalf of Chymical Remedies, whose wonderful nature it is, ever to act *Citiùs, Tutiùs, & Jucundiùs.*

CHAP.

Chap. III.

Of the Faculties of Mixts, and the several degrees of their Qualities.

After all we have said above, we are to consider what benefit we can reap, by separating the five Principles which may be extracted out of Compounds, to exalt the Vertues and Faculties of Remedies, and qualifie them with convenient and various degrees according to their nature. Having then distinguished the various Substances, which an Artist may extract out of Natural Bodies, and having taken notice, that some of them do more or less abound with Sulphur, Salt, Spirit, Earth, or Phlegm and that these five Substances are found in all the Mixts of the three Families of Nature, which are Animals, Vegetables, and Minerals: It seemeth that something may be lawfully determinated in Physick for the use of it, and discovery of such vertues and specifical qualities, as are proper to each of the Substances, extracted out of the Mixt Bodies. For, as Vulgar or Dogmatical Physick hath attributed all, to the several degrees of first and second Qualities: we must in this Chapter open the true knowledge of the specifical vertues of each principle of the compound, that what we shall here deliver, may serve for an Introduction to the better understanding of those Authors, who hitherto have written thereof; for it may be securely affirmed, that whatsoever abounds in Oyl, participates of the qualities of Oyl, and so of the Spirit and other constitutive parts. We might also insert here a Catalogue of all the Mixts, wherein Sulphur is predominant; as also of the Compounds, where the other Principles do abound. We could likewise Anatomize all Natural Bodies, to know precisely in what *dosis* or proportion they possess either of the five Principles, and how Nature hath distributed them to every one in particular, and having perfected such a work, we mought very well bragge, of a distinct and absolute knowledge of the Faculties of all natural things. But, as it is not only a work above the

extent of any one single mans life; and even that many Artists put together were not sufficient for it; and that besides this consideration, many Volumes would be of too narrow a compass to contain the Notes of such Experiments: we will content our selves, to speak only something of it by the by, when we come to the description of the work which may be done upon each Mixt, not exceeding the limits first propounded to our selves in the delineation of this Abridgement.

To return then to our several Degrees of Qualities of Mixts, or the five Substances which may be extracted out of them: We say first, that Oyl doth heat, or perform its operation by the means of heat, which is a more excellent Quality then that which is stiled Elementary. As for Example, We see by a common and familiar Experiment to all, that if the Oyl, or Æthereal Spirit of the Wine, which is its sulphureous part, be separated from its Volatile Salt, exalted by Fermentation, which we vulgarly call *Aqua vitæ*; that which remains hath no heating faculty left, and is quite unapt to communicate any part more of that Quality, which we do attribute to Oyls and Spirits; but, if you joyn again this portion of Ætherial Oyl, or Spirit to its Phlegm or watery part, you shall restore it immediately to its capacity of heating which it had before; which makes us to conclude, that the more a Mixt doth abound in Ætherial Oyl, and Volatile Spirit, the more is it fit to impart heat, strengthen and encrease our spirits, as being more analogous and correspondent to the nature of our vital Spirits, as also of the Animals, because this only portion of the Mixt is able to be conveyed and pass to the last digestions.

The same judgement may be made also of all the family of Vegetables; for we may say confidently, that the different parts of Plants have divers Degrees of Qualities, according as they have been more or less fermented, digested and concocted by the external heat of the Sun, concurring with their internal and essential, which is contained in their Salt, which is as the rind and cover of their fermenting and digestive Spirit; and according as this Salt is exalted, by the actions of these two efficient causes, the parts of the Plants do participate of more or less efficacy. So is the first place assigned to the Seed of the Plant, because

because it is exalted to its perfection, and contains in it self, that germinative and spermatick Spirit, which is capable to produce and multiply it self into its like; and that in the body of the Seed Nature hath likewise gathered, concocted, digested and concentrated all the Salt, Sulphur and Spirit of the Body of the Plant; as it appears by the Distillation of Seeds from which a great quantity of Volatile Salt is extracted, which is nothing else but the three Principles volatilized and united together, by the Internal heat of the Plant, and the External of the Sun: and in this Volatile Salt it is, that the vertues of all things lye hidden, which hath given occasion to *Van Helmont*, to call them the *General Lievtenant* of the *Arcana*. Thence must we by degrees descend to know by divers steps the qualities of the other parts of Plants, following the same Ratiocination we have already made upon the Seed, for in the Flower there is less vertue then in the Seed, in the Leaf less then in the Flower, and in the Wood less then the Rind; and the Fruit is better then the Leaf, and so of the other parts of the Vegetable, which all are to be esteemed according as they do abound in Oyl, Spirit, Essential or Volatile Salt. But we must digress a little here, to note a difference which is between the annual and lasting Plants: for some have the seat of their vertue placed in the root, the others in the leaf, and most in the Seed; therefore all these circumstances are to be weighed, to make a right and solid judgement thereof, and to examine them by the external senses and ratiocination, and make the choyce thereof accordingly.

All what we have said above, may also be applyed to the other Principles, for distinguishing the Degrees of their Faculties; for if, by Example, a Mixt be deprived of its Salt, it shall lose its desiccative, detersive, coagulative faculty, and all other proprieties proceeding from, or depending upon Salt. Now it is possible, that one Mixt compared to the other, may have two, three, four or five times more or less of Salt, Spirit, Sulphur, Phlegm or Earth, according to which the rise and rule must be taken, for subdividing the Degrees of its Faculties; when the Artist shall have discovered by his work, the excess or defect of what produces the vertues of Natural Bodies, that being yet hidden from our knowledge either by the neglect of Writers, or the ignorance

of those Mongrel Physitians, which neither knew their Mother, nor the Children of her Womb: for we see that the juyce of Barberies, Oranges, Limons, common and distilled Vinegar, the Spirit of Vitriol, common Salt, Nitre, Tartar, and many more like, do deserve to have several Degrees of Qualities attributed to them, considering their eminent actions, which proceed from the excess or defect of some Principle more or less depurated; by which it doth appear, that Mixts have more or less of efficacy, action, and vertue, according as the Efficient Principles are more or less in them; wherefore we may with very good ground and reason seek in Chymistry a solid foundation, for encreasing the Ornament and Variety of Physick; correct the vulgar Pharmacy ready to fall to decay; and examin throughly the practise of common Physitians.

Chap. IV.

Of the Order which we will follow in the Description of Chymical Operations.

THE order to be observed in the description of the five Principles extracted from Mixt Bodies by Chymical Operations, may be given two several wayes: for there may be first compiled in a Treatise all the Waters, either simple or compounded, according to their several kinds, as also the Oyls in another, and so of the Salt, and likewise each other of the Principles. Secondly, These Substances may be described in the same Order, as their Extraction out of the Individual Bodies of Nature is performed. This last method we intend to follow, as that which satisfies better the mind of the Inquisitor, and breeds less confusion. We shall then accordingly give to each Mixt in particular a chapter by it self, wherein we shall give an exact description of the nature of the Mixt; and of all the Chymical Operations useful and necessary to Physick: forgetting nothing of

of what may conduce to the exact information of the Artist, in exactly and curiously anatomizing the Mixt upon which he doth intend his Operation, untill he hath separated all the several parts wherewith Nature hath endowed it.

And to proceed more methodically, we shall begin by Meteors, wherein we are to speak of Rain, Dew, Honey, Wax, and Brine or Sea-water; next to which, we will teach those Preparations which belong to Animals and their parts. Then we follow speaking of Vegetables; where we will teach, how the parts of that rich and numerous Family are to be anatomiz'd; and finally, end by Minerals, examining the contents of Stones, Salts, Marcassites, and Metals, whereof we shall separate the hardest, and fixest parts, to draw from thence those wonderfull Remedies, which are lockt up in the Center of those true fruits of the Earth.

Chap. V.

Of Dew, and Rain.

As Chymists can neither extract nor dissolve, without some fitting and convenient Liquor, adapted to the nature of those Substances whereof the vertue is desired (this Liquor Artists do commonly call their *Menstruum*, and this word being the most proper and best known, we will only make use of in all the Operations we are to describe) as (I say) Chymists can perform no Operation without their *Menstruum*; so hath their care and invention, much laboured to finde out one, which should be devested of all particular qualities, and agreeable to all sorts of Mixts, besides the particular *Menstrues* which they possess, and which are destinated for the extraction and dissolution of some particular Substances and Compounds. The Sons of Art, upon this account, have thought no Substance to be more conducible to their end, then that which is the purest and most simple in Nature, *viz.* Dew and Rain-water; both containing in themselves

the Universal Spirit, and capable to yield their universal *Menstruum*, fit for extracting the vertues of things, and to be separated again from them, without robbing or depriving them of any part of their vertue and excellency; provided these two Liquors be well and duely prepared.

It is needless to repeat that Dew and Rain are two Meteors, since we have already spoken of it, in the first part of this Treatise: It will suffice to say, that Rain-water must be gathered from the beginning to the twentieth of *March*, (or eight dayes before the *Equinoxe*, and eight dayes after) because then the Air is all filled and impregnated with those true heavenly seeds that are destinated to the renewing of all natural productions; and when the water hath been elevated from the earth, and deprived of the several ferments wherewith the divers generations made within and without her Womb, had filled her, she doth fall again through the Air, where she is furnished anew with a pure Spirit, undetermined to all things, and fit to assume any shape. And so much shall suffice, to shew the necessity of chooling the *Æquinoctial* time, for gathering of the Rain-water.

Gather then about this time great store of Rain-water, and leave it in a great wooden Tub or Vessel very clean, in an open place, and free to the Air, and there let it ferment, to make a Sediment of the most gross Impurities, which it might have contracted from the roofs and gutters of houses, or other conveyances through which it passes, and is conveyed unto us; it shall yield moreover a kind of skin or froth above, which perfects its depuration; after this fill, therewith great stone-Bottles, Glass-Vessels, or Casks, if you will keep any as it is then, being then even so, fit for many Operations, and more usefull then any other kind of water whatsoever, as we shall make appear in the sequel of our practice; for it is of a more subtile nature then other waters, and abounds with a spiritual Salt, the only capable Agent to penetrate well into the Mixts.

But if you will subtilize more this water, and render it more capable to extract the tincture and vertues of things, you must distill it through the Worm, as you do Spirit of Wine, and draw only the two third parts of what your Vessel contains, reiterating this Distillation, by diminishing still proportionably, till

till from a hundred pints you have but ten, which will afterwards serve to the extraction of purgative Substances.

The same may be done with Dew, which is to be preferred to Rain-water; the time to gather it is *May*, because then it is much more impregnated with the Universal Spirit, and filled with that spiritual Salt, which administers nourishment to all things, causeth their generation, and gives them maintenance.

Chap. VI.

Of Honey and Wax.

You must not think strange, if we reckon Honey among Meteors, since Dew contributes much to its generation; for it thickens after its falling upon Plants, detains and condenses in it self those vapours, which Plants do continually exhale, assisted by the cool of the Night; and the Suns heat doth digest and concoct all into Honey and Wax, which Bees do afterwards gather, and carry into their Hives, for their own sustenance and nourishment. From this that we have said, the consequence may easily be drawn, why one season of the year doth abound more with Honey then the other. The best Honey is that which is of a whitish yellow, pleasant to the taste and smell, neither too thin nor too thick, compacted in its parts, and easily melting upon the tongue. That which young Bees do yield, is better then old Bees Honey. From it is extracted a Water, an Oyl, a Spirit, Salt, and Tincture. From Wax also, which is an Emplastick cleaving substance, is extracted the Phlegm, Spirit, Butter, Oyl, and a very small proportion of Flowers, which are nothing else but the volatile Salt of this Compound.

The manner of Extracting the Principles of Honey.

Take a quantity of Honey, and put it in a Glass Vessel, white Earth, or Stone Bottle Earth, and put above it about

in ℥

ii ℥ of Hemp, or Flax-Tow, to hinder the Honey from raising into the head by its ebullition; cover the Glass or Vessel with its head or Limbeck, and lute or stop well the joynts with two bands or fillets of Paper, spread over with Pap made with flower and water boyled together; put your Cucurbite or Vessel in sand, and give a slow fire at first, to extract only the Water by this first degree of heat; then change your Receiver and increase the fire, which shall drive up a second water, of a yellowish colour, containing the Spirit; and increasing yet one degree more, you shall have a red Spirit with its Oyl, which must be separated by the Funnel, and the Spirit rectified. That which remains in the bottom, calcine in a Reverberatory Furnace, to extract the Salt thereof with its own Phlegm, and then evaporate either to a total drought, or to a skin only, to get Crystals in a cool place.

Both these Waters of Honey, *viz.* the Clear and the Yellow, are very usefull to cleanse and clear the Eyes, take away films, spots, or blemishes; to cause Hair to grow: the Spirit is a great remover of Obstructions; for, being taken from fifteen to twenty drops, in Aperitive Waters, or decoction of Nettle-roots and Burdock, it opens all Obstructions, provokes Urine, and drives away Gravel, clammy and viscous humours in the Reins and Bladder. The Oyl being circulated in Spirit of Wine twenty or thirty dayes, becomes very sweet and pleasant; it conduces wonderfully to the cure of Gun-shots, and to cleanse corroding and cancerous Ulcers: It is a singular remedy to appease the pain of the Gout; as also to take away the spots of the face, being mixt with a little Oyl of Camphire.

To make Hydromel or Mead, and the Vinegar of Honey.

TAke a q. of very good Honey, and viii p. of depurated Rain-water, or River-water, left some dayes in a Vessel, to defecate and cleanse it self from Impurities; then let it boyl softly to the consumption of one half part, being first exactly skimmed. This remaining Liquor put in a Cask, and upon every 30 pints of Liquor put ℥ i. of Salt of Tartar, and ℥ ii. of the Tincture of the same Salt to help Fermentation, which within the Philsophical

Moneth,

Moneth, which is 40 dayes, will be compleated: But you are to note, that every day the Cask must be filled anew, to repair what the fermenting Spirit drives away: that done, put the Cask in a Cellar and stop it well: and this may be used for a very good drink, both by healthfull and crasie bodies.

But when you will make Vinegar, put, in the Vessel wherein you have boyled your Honey and Water to a half consumption, as you are directed above, a knot containing the pounded seeds of grossely beaten, and leave the Cask in a warm room if it be Winter, or expose it to the Suns heat if Summer, untill the Liquor hath done boyling and fermenting; and it will by degrees and slowly turn into very good Vinegar; which may be distilled as the other uses to be. It is an excellent *Menstruum* for the dissolving of Peble stones, and all others, though not calcined before; and this is that Vinegar which *Quercetanus* doth call in his writings, the *Philosophical Vinegar*. You are to note also, that the same Author doth often make mention of Honey, in his Works, under the notion of Dew, or Heavenly *Manna*.

To make the Tincture of Honey.

THis Tincture is not one of the meanest remedies, extracted out of this Meteor; either by reason of the peculiar vertues of the Mixt, or that of the *Menstruum*, used to extract the faculties of this Heavenly Manna, much more full of efficacy, then those have imagined which fancy that it is easily converted into Choler; led thereto by that false Axiom of their School, which they take for a granted truth, that *Omnia dulcia facilè bilescunt*, not apprehending, that these alterations of temper, are not wrought in us by the mixture of humors, but that all is performed by the several fermentations, which have their rise and original in the Ventricle, and that the Leaven or Ferment is either healthfull or sickly, according to the good or evil Idea's, which the spirit of Life hidden in Man, hath conceived. To return then to our matter, we say, that Honey is one of the sublunary substances that hath more in it self of Universal Spirit, and that none is fitter to be reduced to the nature of that general Agent

of the World, to perform thereby wonderfull remedies in Physick; provided we preserve in it something of its specification, whereby it may become usefull and sensible.

Choose then the best and purest Honey you can finde, according to the notes we have already given, and mix one part of it with 3 p. of the cleanliest and purest Sand you can meet with, beating all together in a Mortar, and reducing it to a mass, whereof make pellets of a convenient bigness, to pass through the neck of a Matrass: thus being put in, powre upon spirit of Wine well rectified, and let it rise over the matter three or four fingers; then let another Matrass be inserted in the neck or Orifice of the first, about two fingers deep, and lute the joynts of the two Vessels, with two fillets of Neat or Swines Bladder, dipt in white of Eggs, reduced to water by frequent agitation; (note this manner of luting the joynts or commissures of Vessels, for all the Operations which from henceforth shall be described.) Then tie your Matrass to the Cover of your *B. M.* and suspend to the vapour, and so digest the Honey with its *Menstruum*, untill the spirit of Wine be well impregnated, tincted, and loaded, with the internal Sulphur of this Mixt, which the *Sp. V.* will attract, by reason of the analogy which is between it and this Principle. This being done, leave the Vessels to cool, then open them, and filter the tincture through gray Paper, and having powred it in a small glass Body or Cucurbit covered with its head, luted the joynts very exactly, and adapted a fitting Receiver, draw by distillation half of the Alkohol of Wine, with a very soft heat of the *B. M.* and the Bath being cooled, open your Vessels, and keep choysely the remaining Tincture, in a glass Viol, with a narrow mouth, and well stopt with Cork first seasoned in melted Wax, to stop the porosities of it, and cover it with a doubled wet Bladder and a Paper, that nothing of the vertue of this Remedy may exhale or vapour away, by reason of the great subtilty of its parts, to use when you have occasion.

The use of this tincture is almost heavenly, in all affections of the Breast or *Thorax*, wherein slimy and viscous serosities, gathered in the hollow or capacity or cavity of it, are the cause: For it hath a subtilizing and dissolving vertue, sufficiently strengthning the Patient to expell by spetting, what he findes obstructive and

and cumbersome, or to drive away by urine, sweating, or insensible transpiration, which are the noblest and most ordinary effects of such remedies as come neerest to the Universal Medicine. Such rare Medicaments do prove the truth of this celebrated Maxim, that *Natura corroborata, est omnium morborum Medicatrix.* The The Dosis of this Tincture is from one fourth part of a spoonfull, to a whole, for the more advanced in age; and from five to twenty drops for Children: It may be given alone, or mixt in decoctions, or specifical waters appropriated to the disease; as are the waters of Colts-foot flower, the roots of butter-Burre, the white and odoriferous Hore-hound, Juniper berries, and roots of *Enula*; because all these simples do abound with a penetrating and volatile spirit: it may also be exhibited in broths, or the ordinary drink of the Patient.

To extract the Oyl of Wax.

FRom Wax, as also from many other mixt Bodies, may be extracted, a Phlegm, an acid or sharp Spirit, an Oyl, and the Flowers which we have said to be its volatile Salt. But as these substances (the Oyl excepted) have no great use in Physick, we shall not insist here upon their descriptions; contenting our selves to impart here an usefull, easie and compendious way of making the Oyl of Wax.

Take ℔ i. of yellow, well-smelling, and depurated Wax; melt it with a gentle heat in a Copper skillet, shutting with a close Cover; and if you have a Fire already kindled for some other purpose, take red burning Coals, and extinguish them the one after the other in the melted Wax, untill they are sufficiently imbibed, and well filled with it: and thus continue untill all the Wax be thus consumed, having a special care in the mean while to cover close the Skillet every time you throw the Coals in it, least the Wax should take fire; then pound the Coals to an indifferently gross powder, and mix with equal weight of decrepitated Salt; and having put this mixture in a glass Retort, leaving the third part empty, place it upon a Sand-furnace, with a sufficiently ample Receiver fitted to the neck of it, and lute exactly the joynts with Bladder and whites of Eggs, this having

dryed it leasurely, give fire to it by degrees, untill the vapours begin to cease of their own accord, which ever happens within the space of fifteen or twenty hours, and all being setled and cooled, separate the Oyl which is yet gross and thick from the aqueous Liquor, and keep some part of it in that consistency, to use outwardly, but rectifie the rest in a low Cucurbite, and mingle with 3 or 4 ℔ of White-wine, and ℥ iv. of Salt of Tartar, distilling it with all the care and exactness which is requisite to a very subtile and penetrating Oyl, upon Ashes: Thus shall you have the Oyl of Wax, as clear, fluent and penetrating as the *Sp. V.* endowed with many peculiar vertues, both for internal and external griefs. It is exhibited inwardly in some Diuretick Liquor, from 6 to 12 drops, in retentions of Urine; and for the same purpose may also be given in Parsly-water, and Sassafras-wood-water, or decoction, as also of *Lignum Nephriticum.* Outwardly applyed, it is very resolutive, which makes it of great efficacy to dissolve all schirrhous tumours and swellings; good also to restore motion to Paralytical and contracted Members, and cure all cold aches in the nervous and sinewous parts of the body; it is also used with very good success against *Sciatica*, and cold Gout in hand or feet. The Butter or gross Oyl, which you kept unrectified, cures the chaps of the lips caused by cold, and cicatrizes and heals again the soreness or chaps in the Nipple. The aqueous Liquor or Phlegm being rectified, you shall finde a fourth part to be a spirit of Salt, not of less vertue then that which is distilled alone.

Chap. VII.

Of Manna.

Pliny doth, not without reason, call *Manna* the Honey of the Air, containing in it self a heavenly nature: I have said, that he cal'd it so, not without reason; because Manna is nothing else but a Dew, or a sweet pleasant Liquor, which about

about the time of the *Æquinox*, falls upon the branches and leaves of Trees, thence upon Hearbs, Stones, and sometimes upon the Earth it self, and in a short time is condensed, and takes a form of drops of Gum.

That which commonly is chosen for the best, is the Oriental, as the *Persian* or *Syriack*; but that which ordinarily comes from *Calabria*, a part of the Kingdom of *Naples*, may very well serve turn; it must be white and new, for when it growes reddish, it is a sign of age, and that it hath lost that celestial and spirituous part, wherein did consist its vertue.

To make Spirit of Manna.

TAke of Manna well chosen *q. s.* put it in a glass Cucurbit, covered with its head; lute them both exactly together, and having fitted a Recipient to the Limbeck, give it a slow fire, thence shall come forth a tastless spirit, of very great vertue; for it is a great sudorifick, which with very good success is given, both in pestilential and spotted Feavers, as in all sorts of common Aguish distempers; this Spirit doth provoke sweat copiously, and expells the excrements of last digestions, as may be evidenced by the unpleasant smell of the sweat which it provokes. The Dosis is from one half spoonfull to a whole one.

Moreover, this Spirit hath a peculiar vertue to dissolve Brimstone, and extract the yellow Tincture of it, which is not one of the least remedies for easing the breast, and the principal parts about it, when oppress'd: For this Tincture is as a restoring Balsome, to correct the defects of the Lungs, and strengthen and preserve their action. It may be given in Juice of prepared and depurated, as we shall direct in the Chapter of Vegetables, from one drop to twelve.

There may be also a water of Manna made, which shall be both laxative and sudorifick: For this end, ℞ a parcel of well-chosen Manna, two parts of very pure Nitre, and put them both in a Neat or Hogs Bladder, and having exactly tied it, suspend the same by a string in boyling water, till all the two substances be well dissolved: This Liquor or Dissolution must you distill, as we have said of the Spirit; and you shall have an insipid, laxative:

laxative water, provoking sweat copiously: The Dosis is from i 3 to vi 3, in a broth or some pectoral Decoction. This water may prove a very good remedy to attract forth the superfluous serosities, which ordinarily do breed Rheumatical Defluxions.

Chap. VIII.

Of Animals.

To treat of Animals, is a part of *Chymical Pharmacy*, containing the remedies extracted out of Animals, and the way how to prepare them: And as the object of Chymical Philosophy are all natural substances, so doth she extend her Operations upon all Animals, and Man it self, the most perfect and accomplished of all. But as the extent of a *Compendium*, or Abbreviate Treatise, cannot reach to an exact enumeration of perfect Terrestrial Animals, neither of Fouls, Fishes or Insects, which are the four Classes or Divisions of this vast, beautifull, and noble family of Animals; it shall suffice for our design and purpose, to make first some observations upon the nature of Animals in general, and the choyce which an Artist is to make of them, when he intends to draw from them those wonderfull remedies which they contain, to ease the griefs and misery of mankinde; thence shall we pass upon some of the Operations made on them, to be as a Guide and an Example, whereby to work upon all others of the like nature.

We say then by the way, that as all Animals are made of a more volatile, subtile, and aerial substance, than the Vegetables on which they feed; so in their ultimate resolutions, which Art doth perform, have they less of Earth, and of diversity of Substances: whence it is, that there are only three efficacious Medicines may be extracted from them, *viz.* Spirit, Volatile Salt, and Oyl: We will not lose time in debating here, whether the forms of these Animals are Spiritual or material, being a dispute more of curiosity than use. We will only say, that the Artist must

must choose the soundest and healthiest Animals to extract his remedies from; that they be of a middle age, that the parts may have attained to a requisite firmness, solidity and perfection; for it is well known, that Animals do daily die as they advance in age, after they have past a certain state and period of perfection, which according to the nature of each is the limit of their duration, and their *Ne plus ultra*. It is also requisite the Animal should dye a violent death, chiefly by strangling and suffocating; because suffocation doth concentrate the spirits in their parts, and hinders their dissipation; and that it is in the preservation of this flame and vital light, that properly inhabits, and makes its residence, the vertue of Animals and their parts, as is manifested by the following history of what happened at *Montpellier*, as *Bartholinus* relates it in his Centuries: Which is, that a woman having bought in the Shambles Meat newly killed, and steeming yet with the heat internal, hung it in the Chamber wherein she did use to sleep; having some occasion to wake at night, she was surprized, to see a great light in her Chamber, though the Moon did not shine; she at first was affraid, not imagining the cause whence it did proceed; but at last she perceiv'd, that this light did proceed from the meat she had hung up; and the next morning related it to her neighbours, which desirous to see this thing, which by relation seemed to them incredible, were confirmed in the truth and belief of it by their own eyes: A piece of this Luminous Flesh was carried to the Prince of *Conde*, then Governour for his Majesty in *Languedock*, in the year 1641. and this Flesh at last did lose its light, as it came neerer its corruption. This truth cannot be contradicted in the historical part; and curious searchers of Nature, may see whenever they list, that sparks of light do issue forth out of living Creatures, if they take the pains to rub a Cat-skin in the dark, against the hair, a sufficient proof to verifie more and more, that light is not only the Principle of Composition in all things, but is also the Principle of their preservation, and the chief cherisher of life. The foregoing relation makes me remember a complaint which some Butchers Prentices did make at *Sedan*, that coming by night-time into their Slaughter-house, they did perceive some extraordinary light, which superstitiously they did attribute to apparitions of Evil

Spirits,

Spirits, not without horrour and affrightment, whereof I was an ocular witneſs: but when there was any Candle lighted in the place, the light did vaniſh away; by which it was eaſie to be ſeen, that this light proceeded from the fleſh of Animals newly killed.

Of Man.

THe Chymical Artiſt doth extract from Man, both male and female, ſeveral Subſtances, which are the ſubject of this work, and that either during his life, or after his death; from male and female during their life, are taken Hairs, Milk, After-burthen, Urin, Bloud, and the Stone in the Bladder: After death, uſe is made, either of the dead body, or its parts, which are muſcles or fleſh, fat, bones, or skull. From theſe ſeveral parts, is the Artiſt to take his Remedies, as we ſhall hereunder teach in order; and that will be a ſufficient example to direct him in the like operation upon other Animals and their parts. There are yet beſides theſe above related, ſeveral other parts in Animals, very uſeful for Phyſick: But, as they are not commonly made uſe of in Chymical operations, we think it needleſs to mention them in this Chapter, leſt we break the Law of our Abridgement.

Of Hair.

TO draw from Hair any ſerviceable Remedy, and loſe none of the Vertue, they muſt be diſtilled; for by this Operation is the Spirit and Oyl extracted, and the Aſhes are preſerved: which is performed in this manner.

Take Hair either of male or female, as they are found in Barbers ſhops, or Periwick-makers, and fill therewith a Glaſs Retort, rather then an Earthen one, by reaſon of the ſubtilty of their Spirits, and put it in a Sand Furnace, (which for abbreviation we will call only Sand hereafter): To this, fit exactly a convenient and large Receiver, and lute the Joynts; the Lute being dry, begin firſt to give it a moderate fire; which increaſe by degrees, till the vapours begin to fill abundantly the Recipient; and keep the Fire in this ſtate, until, the vapours being ſpent, the Retort

tort begins to grow clear of it self; then encrease the Fire more violently, that nothing of what may be driven out of the Retort do remain, and the Calcination of the remainder, may perfectly be performed; then ceasing the fire, let the Vessels cool, and you shall find in the Recipient two different substances, which are the Armoniac Spirit of the Hair, and the Oyl, which is nothing else but the sulphurous portion of this Mixt, mingled with the grosser part of the Volatile Salt. These two Substances after separation, may be applyed to Physical uses: But it is nevertheless necessary, to rectifie them before hand, *viz.* the Spirit in *B. M.* upon other Hair, cut in very small pieces, in a small Glass-Body covered with its head, and using all requisite precautions; and the Oyl upon its own Ashes, in an Ash Furnace, giving at first but a moderate heat.

The Spirit of Hair is not inwardly given, partly by reason of its ill taste and odour, partly because Art doth extract from other parts of Man, other Spirits more pleasing, and less nauseous in their use. This Spirit then is never used, but with a mixture of Honey, to anoint the parts where Hair are thin, and grow in small quantity, or altogether fallen away: The Oyl is soverain to eradicate Tetters in what part soever of the Body they grow, making a Liniment of it with Salt of Saturn, and applying to the place, after a due Purgation given to the Patient fit for expelling serosities. The Ashes mixt with Mutton-suet in the manner of a Sear-cloth, produce wonderful effects in the cure of strains, and the strengthning of dis-joynted and dislocated parts. Add to this, that Hair unwrought, are a very present remedy to stanch running of bloud, either in wounds, bleeding of the nose, or immoderate courses of women.

Of Milk.

WOmans Milk of it self is an excellent remedy for Eyes, to appease the grief and remove inflamation, whether proceeding of some hurt in the substance it self, or from small Ulcers which happen to breed in Eye-lids and corners of the Eye: and if Womans Milk cannot be recovered, then some other kind is to be substituted in the place. But there is a Vitriolick Wa-

ter distilled with Womans Milk, or some other, either Cows Milk, Ass, or Goat, which may be still ready at hand, and is no less efficacious to remove any grief from the Eye; It is thus made.

℞ of Milk and white Vitriol pulverised a like quantity, put them together in a Cucurbite or Glass Body, fitted with all the care requisite to Distillation, then extract upon the Ash Furnace, a water *S. A.* with a graduate heat, until the white vapours or clouds do ascend, at which time cease the fire, lest the Water should become corrosive: This Water doth correct the redness of the Eyes, and removes wonderfully inflamations.

Of the After-burthen.

TO prepare any Remedy from the After-burthen, you must chuse (if possible) one of the first birth, and a male: the Woman being of a middle age, as from 18 to 35 years, sound, Black or Chest-nut hair; the Red-hair Women (as participating something of Arsenical Spirits) are to be absolutely excepted. And if the Artist cannot recover one of the first child, let him at least have it of a male child: and, unless in absolute necessity, make no use of a female, which only in such case he is allowed to do: for being both male and female are nourished in the same womb with the same menstruous bloud, there is but the difference of the strength and vigour, considerable in the choyce.

Take then such an After-burthen (as is said) with all the conditions requisite, put in a Glass Cucurbit, and distil in *B. M.* until the bottom be dry, and keep the Water in a Bottle well stopt with Cork, seasoned in melted Wax; and if what is left in the bottom of the Cucurbit, be not dry enough to be reduced to Powder, dry it in a Paper doubly or trebly folded, at a moderate heat. But you are to note, that neither in distilling nor drying of it, it must not be turned upside downwards, that the Spirit and Volatile Salt may the better concentrate themselves, because it is this Salt which properly gives vertue, to the Powder that is to be made thereof.

The Water thus extracted, is an excellent Cosmetick, smoothing wonderfully the skin, both of hands and face, takes away the wrinckles, and spots; chiefly, if you add a little Salt of Pearls

Pearls and Borax. But it is moreover very useful in expelling the After-burthen, when the delivery of the Woman hath been long and difficult, and accompanyed with weakness, provided you mix with this Water the weight of 3 ß. of the Powder of the Body whence it hath been extracted, or the same weight of an Eels Liver dryed with its Gall, which is an approved and infallible Remedy.

The Powder given from ℈. 1. to ij. or iij. is a Soverain Remedy against Epilepsie, either in its own water, or that of Pyony, or *Lilium Convallium*, or Lime-tree, seven continual dayes fasting, during the decrease of the Moon. But if you Calcine the After-burthen in an Earthen unleaded Pot well covered and luted; the Ashes will be a specifical Remedy against the Kings-Evil, and Wens, exhibited in Water of male Southern-wort, the weight of 3 ß. during the last quarter of the Moon, every morning fasting.

Of Urine.

THough Urine be an excrement voyded, and cast away dayly, it contains nevertheless a mysterious Salt, full of Vertues, known but to very few. The ingenious Artist which is acquainted with its proprieties, shall not easily be scared or distasted by the name or noysomeness of it: it belongs only to such as boast of an eminent knowledge in Pharmacy and its Preparations, and dare not nevertheless fowl and fully their hands in the disquisition and separating of the different parts wherewith bodies are compounded. And to prove in general, the divers Medicinal Vertues of Urine, we shall only hint, that the washing with it, when newly voided, doth dry and heal itches and scab, dissolve tumors being applyed warm, mundifies and clenseth wounds and venemous ulcers, prevents gangreen; opens gently the body without gripings, being administred in Glysters lukewarm; for, if it be suffered to cool, it loses that Volatile Spirit wherein the chief Vertue of it doth consist; hindereth, or at least, lesseneth the fits of certain Agues, if it be applyed warm to the wrist, and in frontals: healeth the ulcerous Ears, being poured in; taketh away the redness and the itching of the Eyes,

if be distilled in the corners of them: Being mixt with Spirit of Wine, cureth the shaking of Limbs; and taken in the way of a Gargal, dissipates the swelling and tumour of the *Uvula*: and to be short, appeaseth all the pains caused by vapours rising from the Spleen, applyed in a Plaister-wise made with Ashes. And if thus, Urin seemeth to be a treasure against outward Diseases: it is of no less efficacy against inward ones, being soverain in removing all obstructions of the Liver, Spleen, Bladder and Gall, preserving against the Plague, and curing Dropsie in its beginning, and removing Yellow-Jaundies: And it hath been observed, by some curious searchers of Nature, that the Husband's Urin in difficulty of birth is a specifick remedy, to cause speedy delivery: and experience hath taught it to be no less wonderful and effectual in the cure of Tertians; a good glass full of recently voyded Urin being given in the very beginning of the Fit.

All what we have said hitherto, is only to make it plain, how much more excellent and capable of producing its Effects, well prepared Urin, and separated from its gross impurity shall be, than when it is yet corporeal; and to prove more and more, that the chief, nay almost all the Vertues of mixt Bodies, do proceed from their Spirits, and Salts.

They that will make use of Urin in Pharmacy, or Chymical operations, must chuse (if they can) that of wholesom Bodies of young men, or children, from the age of 10. until 15. years, drinking Wine, if it may be had so, if not, such as they can meet with; for all Urin is never without its Spirit and Salt: But in Urin of this latter sort, they will be fewer and grosser. Though experience hath made it manifest, that the same Remedies are found in it either to be outwardly or inwardly applyed, or to prepare the following operations.

To make the Igneous Spirit of Urin, and prepare its Volatile Salt.

TAke of Urin, conditionated as we have said above, thirty or forty pints, and evaporate it with gentle heat, to a consistency of Syrup; put the remainder in a Glass-Body of about a cubit high, cover it with its Head or Limbeck well luted; and in a *B. M.* or Ashes, extract the Spirit and Volatile Salt by Distillation: if

if you work in *Balneo*, let it be boyling; if in Ashes, give your degrees of fire with precaution. Your Spirit will be found coagulated in the Limbeck in a Volatile Salt.

But you are to observe, not to Evaporate your Urin, but when it is recent and new; for, if you did, after Fermentation or Digestion the best Substance would Evaporate away and be lost.

The Spirit of Urin may also be distilled with a Limbeck in *B M.* hot boyling, without Evaporation; but then it must be rectified.

The same Spirit may likewise be distilled without apparent fire, which is a wonderful operation, and thus performed; Evaporate the Urin with a gentle fire about a third part away, then having filled the bottom of a Glass Body with three fingers high of good unslackt Lime, pour your Urin thereupon being thus evaporated, then cover it quickly with its head, and fit a Receiver; and thus without the help of any fire, shall you obtain in a short time, the Spirit of Urin so Subtile and Volatile, as not to be any way inferiour to any drawn by another method: They that will make use of the open Retort of *Glauber*, shall more easily distil it, and in greater quantity; it is very difficult to preserve the Volatile Salt of Urin, by reason of its subtile nature, and the penetrability of its parts, therefore is it necessary to digest it with its own Spirit, and unite them both together, preserving them in a Glass Viol of a narrow neck, and fenced with a double bladder wetted above all.

This Volatil saline Spirit, or spiritual Salt is endowed with almost innumerable Vertues: for it is first, of a soverain efficacy in allaying the pain of all the parts of the body, and chiefly of joynts, when mixt with some convenient liquor. It opens more then any other remedy, all tartarous obstructions of the Mizentery and Bowels; whence it is used with wonderful success in Scorbutick and Hypochondryacal Diseases, to correct evil Fermentations of the Stomack, and cure the two kinds of Jaundies: it is of no less vertue to dissolve and attenuate the gravel and slimy substance generated in the Reins or Bladder. It may also be made a very excellent remedy against Epileptical, Apoplectical, Maniacal Diseases, and all other of the like nature, which are

said to have their root and first original in the Brain: but it must be prepared as followeth.

Take Vitriol purified by several Solutions, Filtrations, and Crystallizations made with distilled Rain, or which were yet better, Dew-water; Imbibe it with Spirit of Urine, until it only covers the matter; stop your Vessel very close, and put in digestion for eight or ten dayes, after which, put your matter thus digested in a high Glass Body, and distil it in Ashes till dry: you shall have an excellent Cephalick Remedy, to cure the Megrum and all other pains in the head, even by the only smell; and to provoke sleep, if it be only held a little space of time under the nose. That which remains in the bottom of your Glass Body or Cucurbit, must afterwards be put in a Retort in Sand, with its Recipient well luted, to draw the Volatile Salt thereof, and a kind of brown Oyl, not to be despised both in Medicinal and Metallick Operations; you may also make a Dissolution of the remainder, and by Filtration, Evaporation, and Crystallization bring it to a Salt, which is one of the truest Stomachal Remedies to expel those viscosities and hurtful superfluities which most commonly stick to the sides of crude and ill-disposed Stomacks: it must be given in Broth or warm Beer. The *dosis* must be from viij grains to xx. and even to 3ß. The *dosis* of the Spirit of Urine, is from xi. drops to xij. or xv. in Emulsions, Broths, or other appropriated Liquors; that of Volatile Salt from ii. grains to x. in the same manner as the Spirit.

To make the Water, Oyl, Spirit, volatile and fixed Salt, of Humane Bloud.

TAke in the month of *May*, a good quantity of some young mens bloud, which they ordinarily cause in that season to be let out for prevention of diseases, and distil it in Ashes in a large Glass Body; but to prevent the raising of it in the Head or Limbeck, put upon it two or three handful of Hemp, luting all exactly, and fitting a convenient Receiver; rule your fire accurately by proportionate degrees, and take care above all things, that the remaining Mass after distillation in the bottom may not burn, but be only dryed sufficiently. So shall you have Water and

and Spirit, which rectifie in *Balneo*: with the Water you may extract the Salt remaining in the *Caput mortuum*, after due calcination; the Spirit may be preserved as it is, to be used against the Falling-sickness, and Convulsion fits of children. The *dosis* from 3ß. to 3 i. It is also a specifick Remedy for the same diseases, if you mix with it the Flower of Lilly-convally and Lavender, to extract the Tincture thereof. It will nevertheless be better, if you cohobate it in a Retort upon what did remain in the bottom of your Cucurbit, or Glass Body nine several times, or so long till it hath got a ruby colour, and that the Oyl cometh at last with its volatile Salt, sticking to the Neck of the Glass or the sides of your Recipient; then mix it with the Spirit, and joyn them together by distillation in *Balneo*. This is that Spirit impregnated with its volatile Salt, so much cryed up for the cure of Palsie, being inwardly taken from six drops to ten, in Broths, or decoction of Squina-root, or in white generous Wine.

What did remain in the bottom of the Glass Body, must be calcinated with a circular fire to extract the Salt thereof, with the water that came first in the distillation, filtring, evaporating, and crystallizing, to preserve for the following use.

Take the distilled Oyl, and rectifie it upon Colcothar in Sand in a Retort, until you find it subtile and penetrative; mix the fixed Salt with your Oyl, and digest it together, until they be perfectly united; and thus shall you have a wonderful Balsom, to allay the grief of Gout in hands, and feet, and remove the swelling and redness thereof: But, that which is more considerable, is, that this remedy softens, dissipates, and dissolves the Chalk gathered by the Gouty humor in the Joynts, as also coagulations in the Joynts of Pocky Bodies, being purged before with the ordinary preparations of Mercury and Antimony.

But you must not stick still at the Spring season of the year, whereby to get your bloud; for if necessity doth require it, you may take it also in the other seasons of the year; you may also make use of Goat, Swine, Neat, or Sheeps bloud, and distil it with the same Art, and in the same manner as humane bloud; for in perfect Animals, the natural digestions are performed in the same manner, and their bloud is endowed with the same vertues; only that of Man is of a subtiler nature, by reason of the delicacy of his food.

To

To make the Salt and Elixir of the Stone and Bladder.

IT is a wonder of Nature, that the very same thing which causes in Man such extremities of torture, should become to the same disease so good and certain a remedy: this is experimented in the Stone of the Bladder, which without any other preparation than being reduced to small Powder, may be administred from ℈ i. to ʒ i. in white Wine, or decoction of Burredock Roots and red Nettles, to dissolve the Stone in the Bladder, and expel gravel and slime from it and from the Kidneys: but those Remedies being heightened by Chymical preparation, are much more efficacious, and do act with a much greater quickness.

Take then a parcel of these Stones, reduce them to powder, and joyn with 2. pintes of Beach Coal pulverised, and thus being put in a well luted Crucible, calcine it with a circular or reverberatory fire, the space of five or six hours; and being cooled, grind your matter upon a Marble, and, with some diuretical Water make a Lye thereof; or, with Phlegm of Salt-Peter, or Allom, filtrate and evaporate till it skins; then in a cold place draw your Crystals, and so continue to do, till you have extracted all the Salt; which if you find not yet sufficiently cleansed, put it again in a Crucible, and let it grow red-hot in the fire without fusion, then purifie by reiterated solutions, filtrations, evaporations and crystallizations, until you like it. You must keep this Salt well dryed, in a Glass Viol well stopt, lest by the attraction of Air, it should contract moisture. The *dosis* is from iv. grains to viij, in appropriated Liquors, to facilitate the excretion of Urin, dissolve and expel the gravel and slimy matter in the Reins and Bladder, which most commonly are the occasional cause of generating the Stone.

But if you will have an Essence or Elixir out of it much more efficacious then this Salt, calcine the Stone with equal weight of well purified Salt-Peter in a Crucible with a circular fire, the space of six hours; then extract the Salt from the matter calcinated, with Spirit of Wine, filtrate, evaporate, and draw your Crystals, and when they are well deficcated, put them to digest in a double Vessel *in Balnei vapore*, with rectified Spirit of Wine: then co-

ver

ver it with a head, and draw the Spirit of Wine in a gentle *Balneo*, and cohobate so often, till the Salt be reduced to a very subtile and clear Liquor, which you are choysely to preserve; it must be given from five drops to ten, for the same Diseases, and in the same Liquors before mentioned.

The Artist must not scruple to make use of Nitre in the Calcination of the Stone of the Bladder, lest its Salt should joyn with the other: for, besides that all, what is volatile, sharp and corrosive in the Nitre, flyes away in the calcination, that substance of it which remains after the Stone is calcined, can but augment the efficacy of the Remedy, then lessen or obstruct it, being reduced by the action of the fire to the universal nature.

Having thus ended to treat of those things, which are extracted from Man's body during its life; we will end this Chapter by examining those Sustances which his Body may afford after death; beginning with the Flesh, which doth furnish us with several considerable preparations, as in the sequel will appear.

Of Humane Flesh and its Preparations.

THe Mummy which is prepared out of the Flesh of Man, is one of the noblest Remedies which all the parts of his Body can afford: But, because it is abhorred by some natures, and is neither known, nor well apprehended by others, it will not be unfit to say something of its differences, before we come to the description of its true Preparation.

Those that have more learnedly writ of Mummy among the Ancients, make only four kinds of it: the first is the *Arabiack*, which is nothing else but a Liquor flowing from Bodies embalmed with Myrrha, Aloes, and natural Balsom mixed and incorporated, with the fleshy substance of embalmed bodies, containing the Spirit and volatile Salt, from which doth result the Mummial part, which composes with Myrrha, Aloes, and Balsom this first kind of Mummy of the Ancients, which were not to be despised, if recoverable; but none such is to be found at this day.

The second kind, is the *Ægyptian* Mummy, which is a Liquor thickned and dryed, proceeding from the Bodies which have been seasoned and filled with a Balsom, ordinarily called *Asphaltum*,

or *Piſſaſphaltum* (a kind of Bitumen). Now as Sulphur in natural bodies is incorruptible, ſo is it by his means and Balſamick faculty alſo, that dead bodies are preſerved againſt corruption: This ſecond kind is much inferiour to the firſt, and is only fit for outward uſes, being not capable to draw from the dead body, the vertues of the median life, which was hidden and concealed in the parts, by reaſon of the compactedneſs and cloſeneſs of parts of theſe Bituminous Sulphureous Subſtances, which are dry, crumbling, brikle.

The third kind is altogether to be laught at and rejected, being nothing elſe but an Artificial *Piſſaſphaltum*, *viz.* black Pitch mixed with Bitumen, and boyled with a Liquor iſſuing from the dead Bodies of Slaves, to give it the cadaverous ſmell; and this third ſort is uſually found in Druggers ſhops, which furniſh Apothecaries; deceived by the odour of this Drugg ſophiſticated and falſified. This that I ſay, have I learned from a Jew of *Alexandria* in *Ægypt*, laughing himſelf at the credulity and ignorance of Chriſtians.

The fourth, and beſt, and leſs ſophiſticated kind, is that of Humane Bodies, dryed up in the hot Sands of *Lybia*; for it happens often, that whole Caravans are ſwallowed up in the Sands, when any contrary wind doth in an inſtant ariſe, and whirling the Sand, doth in an inſtant cover and overwhelm them unawares. I have ſaid, that this fourth kind is the beſt, becauſe it is uncompounded, and that this ſudden ſuffocation doth concentrate the Spirits in all the parts, by reaſon of the fear and ſudden ſurpriſal, which ſeizes on Travellers, according to that ſaying of *Virgil*,

Membra quatit, gelidusque coit formidine ſanguis.

And becauſe moreover the ſudden exſiccation cauſed by the heat of the Sand, or the irradiation of the Sun, communicates unto it ſome aſtral vertue, which by any other way whatſoever cannot be performed.

They that can recover this laſt kind of Mummy, ſhall make uſe of it towards the following preparations: But, becauſe theſe dead bodies ſo dryed, are not ſtill to be recovered, and that the Remedies thereof extracted are very uſeful and neceſſary; the

the ingenious Artist may substitute a fifth kinde of Mummy, *viz.* that which *Paracelsus* calleth *Mumiam Patibuli*; and which may lawfully be also called the Modern Mummy, which you may prepare in the following manner.

Preparation of the Modern Mummy.

TAke some young lusty mans body, of about 25 or 30 years of age, dead by suffocation or hanging, and dissect the Muscles without loss of their common Membrane, and being thus separated, dip in *Sp.* of Wine, and suspend in a place where the air may be drye and pass freely to and fro, that they may be soon desiccated, and the volatile Salt and Spirit contained therein, may be concentrated in the fibres, the serous and unserviceable part only vapouring away; and if so be the weather proves moyst and rainy, these Muscles must be hung in a Chimney, and every day aired with a small fire of Juniper wood, having all its leafs and berries, untill they become as dry and well seasoned as the powdered Beef, which Mariners use for long Sea-voyages. Thus will you have a Mummy not inferiour to that of the fourth kind before described; yea in some regard to be more valued, because we are assured of her preparation, and we can upon any occasion more easily come by it, and that it seemeth that the Spirits, Volatile Salt, and the Mumial and Balsamick Substance, must by this Preparation be better preserved, the flesh thereof not being dryed with so intense and great a heat.

To make the modern Mumial Balsom.

TAke ℔ 1. of the fifth kinde of Mummy, and bray it with a wooden Pestle in a Mortar, untill it be reduced to very thin fibres; which cut afterwards very small with Cizzers, and put in a long-neckt Matrass, pouring thereon Oyl of Olives impregnated with spirit of Turpentine, which is properly her Æthereal Oyl, untill it swims above the matter three or four fingers high, seal your Glass Hermetically, and digest it in *Fimo*, or at the vapour of a hot Bath or *B. M.* in dust of Wood, during the space of a Philosophical Moneth, which is a space of forty dayes,

without interruption of the heat: Then opening the Vessel, pour your matter into a Cucurbite, and without covering put it in *Balneo M.* and so let all the nauseous smell which it had contracted, exhale away, and all the Mummy be dissolved; then strain it through a Cotton, and let this dissolution digest in *Balneo* in a double Glass, with equal portion of rectified Spirit of Wine, wherein you shall have dissolved ℥ ii. of old Triacle, and mixed ℥ i. of Vipers flesh in powder, during the space of three weeks, at the end whereof, you shall take away the blinde head of the double Glass, and cover the remaining body with a Limbeck-head, drawing away the *Sp. V.* with a very gentle heat of *Balneo*; and thus shall you have a most efficacious Balsom, usefull both inwardly and outwardly applyed.

It is an excellent internal remedy against all venemous Diseases, but particularly against Pestilential, and all those that come neer their nature. It is also singular for inward bruises, and congealed blood by a fall, for Palsie, contracted Limbs, and weakened by Atrophy, Plurisie, and all other Diseases which are help'd by sweating: Therefore great heed must be had to cover well the Patients to whom it shall be exhibited. The Dosis is from ℥ i. to ℥ iii. in Broths, or Tincture of Sassafras, or Juniper-berries.

But the vertues of it outwardly applyed, cannot enough be commended, for it is a Balsom to be preferred even to the Natural, which appeases all external griefs or aches proceeding from cold, or any winde or vapour shut up in the spaces that are between the Muscles, as also caused by bruises and crushings; you may also anoint therewith Limbs struck with Palsie, shrunk and contracted parts of the body, or weakened for want of nourishment; you may also rub therewith all places of the body where a pain is felt, and no swelling or redness seen: but you must observe, that it will be good at the same time, to give some inwardly to the patient, that the internal heat may co-operate with the external; to this end he must be well covered, and left to his rest for some hours, to provoke sweating, or to cause that which occasioneth the grief and vice of the parts, insensibly to transpire.

How

How the Fat of Mans Body is to be prepared and distilled.

THe Fat of Mans Body, without other preparation, is of it self an outward remedy very considerable; for it strengthens the feeble parts, and dissipates the external dryness, appeases griefs, dissolves contractions, and restores to sinewous parts their action and motion lost, softens the hardness of Cicatrices or Skars, fills up holes and cavities, and smooths the hollow places which the Small-pox leaves usually in the skin.

The first preparation is common and simple: for it prescribes only to cut it and boyl it in White-wine, untill the pieces are well crisped, and the moysture of the Wine evaporated; then crush it between two Tin-plates warmed before: and so keep it for use.

The second preparation is, when you intend an Anodine Ointment, cooling, and resolving, which may very successefully be applyed in swellings, inflamations, hardnesses, and other accidents usually happening to Wounds and Ulcers, either by the Patients own distemper and ill diet, or the Chirurgeons neglect and unskilfulness: You must thus prepare it. Take Phlegm of Vitriol, or Alum, impregnated with their sharp, sowre spirit, about ℔ ß. put therein to digest in Sand ℥ ii. of washed and dryed Litharge or white Lead, stirring it often; and when your Liquor is well impregnated, filtrate it, and thereof make a Liniment in the form of a *Nutritum*: and if you desire to make it more specifick, add to it in the stirring some proportion of the Tincture of Myrrhe and Aloes, drawn with good Spirit of Wine.

The third and last preparation is the exactest and best, and is performed by distillation in this manner. Take 1 p. of Fat, and 2 or 3 p. of decrepitated Salt, and being well mixed and incorporated together, put it in a glass Retort, joyned to its Recipient, both well luted *S. A.* in a Sand-furnace, then give it a graduate fire, untill the bottom of the Retort groweth red, which may be performed in the space of eight hours; and thus shall you have an Oyl of a subtile and penetrative nature, a soveraign remedy to re-animate, and take away the benumming of Paralytick

litick Limbs, which for the most part are cooled and deprived of nourishment: better by much then the substance from whence it was extracted, to all the uses and purposes which we have assigned it hereabove. And if you will make this Oyl yet more subtle and penetrating, circulate it in *Balneo* with equal p. of Sp. of Wine, for the space of some dayes; then rectifie and distill in Ashes, in a low Glass body; by this means it shall become so penetrating, that scarce it can be preserved in Glass, and becomes imperceptible as soon as applyed, by reason of its quick penetration.

These Preparations already described, may be a pattern for all other kinds of Oyls, Butters, Fats, and such like, which by this method may be made more efficacious and penetrating.

To make the Spirit, Oyl, and Volatile Salt of Mans Bones and Skull.

THe preparation of the Skull, shall not differ from that of the Bones; wherefore we will not lose time in making two several descriptions, the one and the other being thus wrought.

Take the Bones of a Man extinguished by violent death, which neither have been buryed under ground, nor boyled, nor put in Quick-lime; and saw them in pieces of a convenient size to be put in a Retort well luted, and being filled not above the two third part: put it in a close Reverberatory Furnace with open fire; and having exactly luted and fitted a Recipient to it, cover the Reverberatory, leaving only a hole of about the bigness of an inch and a half diameter, to be as a Register for ruling the fire, which ought to be moderately graduated, untill all the white fleams be over; then change your Recipient, or empty the matter contained in the first, and lute it again exactly, continuing and increasing the fire, untill you drive out the Oyl with a Volatile Salt and the remainder of the Spirit, which work must be thus pursued, untill the Recipient begins to clear of it self, which will happen in the space of twelve hours, from the beginning of your Operation. But you must note, that the dust coming out of the sawing of the Bones, must be preserved, or some other provided by scraping or filing, to be used in rectifying of the Spirit, Oyl, or Volatile Salt. You must also calcine and reverberate with open fire

fire to whiteness, between bricks, the pieces or lump remaining in your Retort, that they may serve in a manner to stay and fix the Volatile Salt, which otherwise, by reason of its subtile nature, cannot be preserved: as we shall declare, when we come to speak of the distillation and rectification of the Extract of Harts-horn.

I cannot here bury under silence an experiment wherein I was an Eye-witness, in the person of a Cornet, who had received a Musket-shot in the thigh, neer unto the knee, and who after the wound healed, had both his leg and knee so strangely put out of their natural posture and situation, that his heel did almost stick unto the buttock, which made him uncapable of the function of his employment. But their Surgeon major, who was a *High German*, did undertake the restoring of his knee to its natural motion; which to effect, he administred unto him every day, for the space of six weeks, ℥ i. of the powder of a thigh or leg-bone of a man, who some yeers before had been dissected, in his ordinary Broths; by which he did recover not only the bending of his knee, but made him capable, before the six weeks ended, to Fence, play at Tennis, ride on Horse back, and perform all other exercises. Whence you may note, that so rare a Cure could not proceed but from the volatile, spiritual and penetrating Salt, which this remedy did contain, since the material part of the bone could never pass so far as the last digestions. I have quoted this history, to no other purpose then to perswade the better, and lay more open to the understanding, the effects of those remedies which are extracted from the skull and bones of Man, by distillation, separating artificially the pure parts from impurity. The Spirit and Volatile Salt of Mans skull is given against Epilepsie, in water of Lime-tree flowers, Lilly-Convally, or Piony: that of bones is also successefully administred, to restore contracted and dryed Limbs; provided you rub them also with Balsom of Modern Mummy: The Oyl of skull and bones is only applyable outwardly, to cleanse and heal filthy and corroding Ulcers, provided you mix a little powder of Colchotar, and every other day plye the patient with vulnerary and purgative potions. The Dosis of the Spirit is from three drops to ten, and of the Volatile Salt fixed from four grains to eight.

The

The manner of preparing Remedies out of Harts-horn.

ALthough we have given a method whereby to perform all Chymical Operations, in extracting remedies from the parts of Animals; yet becauſe there may be many that will be ſhie to work upon the parts or ſubſtance of Man, and that ſome Animals parts do differ from that of Man, and contain in themſelves a greater ſhare of the uſefull ſubſtance, to encounter and cure diſeaſes: I thought it neceſſary, exactly to deſcribe ſuch good remedies, as may be extracted out of Harts-horn, and lawfully ſubſtituted to thoſe which are extracted from the body of Man. For we muſt confeſs, that there is ſomething very noble, and worthy of our conſideration, in the annual production of the Stags head, which every Spring he doth renew by a kinde of Vegetation: And to prove and clear this truth, it is to be noted, that the head of this noble Creature, becomes then only uſeleſs and troubleſome to him when he is grown decayed and lean; which the *French* Huntſman expreſſes by a very ſignificant Phyſical notion, *Tomber enpauvretè*, Grown poor; for their meaning is, that the Deer hath want of good and ſufficient food during the Winter ſeaſon, when the earth being long-covered with ſnow, theſe poor Creatures are exhauſted of natural ſpirits, and want ſufficiency of radical moyſture, to fill up and ſhoot into their heads, having ſcarce enough to prop up and maintain their life, which makes them in that ſeaſon prove lean and languiſhing. But when the Spring, repairer of Nature, reſtores again the freſh Graſs to Valleys, and tender buds to the Copſes, they are ſo plentifully re-animated with a new fire, that the ſublimated Spirits ſhooting into the head, do provoke them by a violent itching to caſt their old head, which at that time is become ſpongious and hollow, and ſpoiled of its beſt and principal part, which is a volatile ſpiritual Salt, in which doth conſiſt all its Medicinal vertue; after which they recover a new Velvet head, ſoft in the beginning, and filled with a very ſubtile Salt; which hardens by degrees, till it hath attained to its full perfection: From whence we may gather, that it is very neceſſary to have a regard in the choyce of the heads of this noble Creature; for, you muſt not take for Operations, any of the caſt heads,

heads, neither before they have attained their full and requisite firmness; or when they are too neer the Winter-season: but the fittest time to have it in its true perfection, is between the two Feasts of our Lady in *September*; for at this time it is sufficiently furnished with Spirit, Volatile Salt, and Oyl, to prepare those Medicines with it, which we shall hereunder describe: The Stag or Deer must be killed by the Dogs. But before we goe further, it will not be from our purpose, to shew, *How the Water of Stags head is to be distilled*, whilest it is yet tender, and covered with its hair, being a Water of very great vertue, and much less heating then the other remedies which we shall describe; her Spirits being but yet in their Embryo, not sufficiently concocted and digested, to attain their last perfection.

How the Velvet head of a Stag is to be distilled, to have thereby the Water of the Stags-head.

TAke the said Velvet-head from the 15 of *May* to the end of *June*; cut it in pieces of the thickness of a half-fingers breadth, and place them checker-wise one upon another, in the bottom of a Glass Retort, which put in *Balneo*, and when all is ready, give fire till the Water begins to drop down, continuing that degree of heat untill no more water comes out: you may afterwards put your Cucurbite in Ashes, to extract the remaining moysture, that the pieces being more dry, may the more easily be preserved. Some do add Wine, Cinament, Mace, a little Saffron in the distilling, to make the Water more efficacious, chiefly to ease women in hard Labours, help to expell the after-burthen when they are grown weak, as also to cleanse the womb from such serosities, as during the Childe-bearing have crept in between the Membranes, causing with the remaining blood, those gripings wherewith women newly brought to bed are for the most part tormented. The industrious and curious Apothecary, may make it simple and compounded, the better to answer those Physicians intentions which will be willing to employ him. The Dosis of the simple-water is from half a spoonfull to two, and even to more, considering it is a water that strengthens without altering and heating; and besides its singular use in Childe-

beds, it is of no less efficacy in all diseases where there is a touch of venom. They that will preserve it long, must add to each pound weight of this water ℥ i. ß. of Borax in powder, by which it will increase the more its vertues for Childe-births, since Borax it self is a specifick remedy to help and facilitate Delivery. The Dosis of Compounded Water must be less, for it must not be administred above ℥ ii. in quantity, in all malignant, and spotted or purpureous Feavers but chiefly in Measles and Small-pox it is a most soveraign Antidote.

The pieces which did remain in the bottom of the Glass, are not to be cast away, but rather to be preserved, and being beaten into very small powder, used from ℈ ß. to ʒ ß. for killing Worms in Children, and to hinder their breeding, giving it in decoction of Scraping of Harts-horn and Ivory; this powder hath not lost its vertue, because the heat of *B. M.* is not strong enough to elevate the Volatile Salt, which was inclosed in the most solid parts of these pieces.

A Philosophical Preparation of Harts-horn.

MAny are of opinion that Harts-horn cannot be made tender and crumbling enough to be easily afterwards reduced to powder, without previous Calcination; but as this way of Calcination deprives it from its Spirits and Salt, the Sons of Art have found a way of a Philosophical Calcination, which preserves its vertue: whereby may easily appear how much ancient Pharmacy doth come short from that which in our dayes hath received the light of Chymistry.

Take then well-chosen Harts-horn, and gathered in its true season; saw it in pieces of the length of a Pan about the ends, then putting two sticks crosse-wayes towards the top of such a Glass Body as usually serves for distillation of Spirits and Waters, there suspend with a pack-thred pieces of the branches of the Deers head cut as before, when you are to distill any Cordial Waters, such as of *Carduus Benedictus*, *Ulmaria*, or small Centaury; or, which would yet be better, when you goe about to distill any fermented matters, which send forth more penetrative and subtile vapours, you must cover the glass body with a Limbeck, and give the

the same degree of fire as for the distilling of *Aqua Vitæ*; so shall these vapours penetrate into the very center of your Harts-horn, and make it as easie to crumble and be reduced to powder, as if calcined with open fire, and grinded upon the Porphyry: but you must prosecute the work of your distillation, four or five dayes, without intermission or opening the Vessel; for which reason, the Glass Body must have a hole towards the upper part, placed side-wise, whereby to recruit it with warm Water proportionably as it diminishes by distillation, taking care also that the Liquor should not come neer the suspended matter by half a foot. And if it be objected, that the vapours may carry along with them the most subtile Spirits of the Harts-horn: We answer, that it may be so, and that these cordial and sudorifick Waters, whether distilled Spirits of fermented Juniper, or Elder-berries, do thereby contract a greater vertue: but that this vaporous heat is not sufficient to carry along with it the Volatile Salt, inclosed up in the matter by the strict bond and union it hath with the Oyl or Sulphur, which cannot be disunited but by a much more violent heat. Harts-horn thus prepared, is much better then that which did remain in the foregoing distillation, as much to strengthen and provoke sweat, as to give to Children against Worms, and hinders all those corruptions which breed for the most part in their tender stomacks. The Dosis is from ℈ ß. to ʒ ß. and ℈ ii. in cordial and sudorifick Waters, or in some specifick Conserve, against all Pestilential and Venemous Diseases.

How to prepare the Spirit, Oyl, and Volatile Salt of Harts-horn.

TAke of Harts-horn with its requisite conditions, as much as you think fit, saw it by round pieces of the thickness of two Crowns, fill with it a Glass Cucurbit or Retort well Luted, and put it in a close Reverberatory to open fire, which graduate untill the drops begin to follow one another in the Recipient well Luted with a wet Bladder, and fall no faster then you may reckon Four between the interval of each drop falling; then continue and direct the fire upon the same equality and rule, untill the drops begin to cease; then remove your

Receiver, and empty it, then put it again, and lute it with good salted Lute *S. A.* and encrease the fire by a degree, untill the Oyl doth begin to distill, with some little remainder of the Spirit, and the Volatile Salt will gather it self by degrees, and stick to the neck of the Retort, and thence pass in the form of a Vapour in the body of the Recipient, where it shall stick to the side in the figure and form of Stags-horns, and branches of Trees, when they are loaden with hoar-frost or snow; which is an Operation very pleasing to the sight; for, of this Volatile Salt some part also under the shape of snow, doth fall into the bottom of the Recipient, and joyns it self to the Spirit which is under the Oyl. Then continue the last degree of fire, untill nothing more cometh out, and the Recipient begins to appear without vapours.

But it is not enough to have extracted out of Harts-horn these several Substances, but the Artist must be taught besides how to rectifie them, both to take away as much as is possible the *Empyreuma* thereof, as to separate its grossenes; And to begin with the first extracted Substance, which is the Spirit, it must be rectified in Ashes, with gentle and soft fire, in a Glass Retort, wherein you have put sawings or scrapings of Harts-horn three or four fingers high, and so shall the Spirit come forth fair, clear, depurated and deprived of the greatest part of its ill odour: The first drawn is to be preferred to the last; because it is a Volatile Spirit, whose nature it is to ascend first still; the remainder must be cast away, as unusefull and unserviceable, but the rectified Spirit is to be choysely kept in a Glass Viol of a narrow neck, very well stopt.

It is an excellent remedy either inwardly or outwardly applyed: for it purifies and cleanses the whole mass of the Blood, of its serous superfluities by Urines and by Sweat, as also by insensible Transpiration; therefore it is a true Specifick against Scurvey, the Pox, and all other Diseases proceeding from alteration of blood. Finally, this Volatile Spirit may worthily be substituted to that which is or may be extracted from all the parts of other Animals, and to be an excellent remedy to all the same purposes as the others formerly mentioned. But outwardly applyed, it is also of a marvailous use; for it cleanses wonderfully all malignant, corro-

corrosive, cancerous, or fistulous Ulcers, if they be washed with it, or if it be injected with a Springe. It serves also for fresh wounds, caused either by fire, sword, or otherwise, preventing all dangerous accidents; it is friendly to Nature, and helps her to the re-union of separated parts, whose intention being not to cause suppuration, or a colliquation of the flesh and adjacent parts, so doth this Spirit hinder the same: But note also, that you must give it inwardly at the same time, from six drops to twelve, in vulnerary potions, or the Patients ordinary drink. To be short, this Spirit is nothing else but a Volatile Salt turned to Liquor, as the Volatile Salt reciprocally a Spirit compacted and condensated; whence it comes to pass, that they may indifferently be administred to the same purpose, except that the Dosis of the Volatile Salt, must be something less then that of the Spirit; so that the vertues attributed to the one, may be said also to be proper to the other.

We have no other observation to impart, for the rectifying of the Volatile Salt and Oyl, but that the Operation must be performed in a Retort, upon scrapings of Harts-horn, and with the same circumstances for regulating the fire. So shall you have a fair, clear, and Ruby-red Oyl, swimming over the Volatile Salt passed into the Recipient, or sublimated to the neck of the Glass, the Salt must be dissolved with its proper rectified Spirit, by a dissolution made in the vaporous heat of lukewarm water, to separate it from the Oyl. This dissolution is to be filtrated through Paper, which must be moystened by the Spirit before you pour any thing into it, and you shall have the Oyl by it self, and the Salt in its proper Spirit, which thereby is so much bettered, and keeps thus better then alone, unless it be stayed and fixed, as we shall direct to do hereafter. To this end put the dissolution of the Salt and Spirit in a Cucurbit in *Balneo* to distill again the Spirit, and sublimate the Salt in the head, or if you please in a Retort: It is almost impossible to preserve this Salt, so penetrative and subtile it is, therefore it must be stayed in the following manner. Take the round pieces which were left in the bottom, after the distillation performed, being very black, calcine them in open fire to whiteness, reduce one part to powder, which mix with equal weight of its Volatile Salt, and sublime together,

and so begin afresh with new Harts-horn calcined to whiteness re-iterating four or five times, and thus shall you have a volatile Salt fixed, which you may keep, transport or send with less danger then the Spirit: nevertheless, it is my counsel to use rather Spirit, filled, and as it were saturated with volatile Salt, to all the ends and purposes to be declared hereafter.

This Remedy might truly be called a *Panacea*, or *Universal Medicine*, considering the wonderful effects it is apt to produce; for it is soverain against Epilepsie, Apoplexy, Lethargy, & generally against all Diseases, whose spring and original is ascribed unto the Brain: It takes away all obstructions of Liver, Spleen, Mesentery, and Pancreas; resists all Venoms, Pestilence, and all kinds of Fevers, or aguish distempers, none excepted. It clenses the Kidneys and Bladder from all slimy substances, which are the cause and original of Stones; corrects all defects of the Ventricle, and peculiarly indigestions, which occasions an ill breath: it is a specifical remedy for the Lungs, if it be digested with the Milk of Sulphur. It allayes the immoderate looseness of the Belly, and the womans purgations, because it evacuates superfluous serosities, which are the cause thereof; but, that which seemeth more inconceivable and wonderful, is, that it opens also the Belly when bound, and provokes Monthly Purgations, restoring all the functions of Nature in their former estate, and removes all gross and terrestrious matters, which did hinder their effect. I make no doubt, but I shall appear ridiculous to all them which do not understand the sphere of activity of Volatile Salts: but I know likewise, that those who know with me, that this Salt is the last cover, and cloak as it were, of Spirit and Light, shall not find it strange, that I should attribute so many noble effects, to this admirable Remedy. But I will yet unfold and open more this Mystery, as much as lies in me, by a description of what dayly is done in our Kitchings, in the preparation of meats, both for healthy and sick people. Is it not unknown to all, that no Cook can make either a Bisk or good Bagon, without making use of the Broth, gravy, and juyces of the best kinds of meat; now it is only by their Volatile Salt, variously disposed and mixt, that the pleasure and tickling which affects our taste, is communicated to the Palate. Are there not also Jelleys, strong Broths, and Juyces

of

of boyled Meats prepared for the sick, whereof the material and earthly dregs and superfluities are thrown away, being deprived of that Salt, which remains in the Jelleys; and is the only principle of congelation: they are exhibited to weak and crasie bodies, that their Stomack might sooner turn these aliments to the substance of the parts by the easiness of digestion. The same doth our Artist in the preparation of the Volatile Salts, which are capable to show suddenly their Vertues, in that they soon penetrate all the parts of our bodies, and carry along with them that wonderful efficacy which we have attributed them. And do we not see, that both the ancient and modern Physick, hath ever prescribed Harts-horn as a necessary ingredient amongst her Cordials, hath in very great esteem the bone of a Stags-heart, and that the shops dayly prepare Harts-horn Jelley, rather to strengthen the Patient, then to nourish him. But we leave all this to the Touch-stone of Experience, which is the true ground of all our fore-going Ratiocinations.

To make the Tincture of the Volatile Salt of Harts-horn.

TAke the Volatile Salt rectified, and put it in a double Glass, or Blind-head, which would yet be better in a Pelican; pour on twice the weight of it of Alkool of Wine, and so let it stand twelve or fifteen days, in extraction and digestion together, in the gentle heat of a vaporous Bath; and if all the Salt was not dissolved, draw off what is already tincted by inclination, and pour on new Alkool to perfect the extraction and dissolution. So shall you have a Tincture much more exalted then the preceding Remedies, fit for all the uses we have already mentioned; and moreover, a most rare Remedy, and of very present help and efficacy in Apoplexies; by reason of its subtilty which is so great, that it can scarse be preserved in the best stopt and closest Vials.

The same may be done with the Volatile Salt stayed, and as it were fixed, but it will not all dissolve, neither shall its tincture be of that penetration and efficacy; but it will be much more pleasing, and deprived of the nauseous smell: The *doses* of the first is from iij. drops to viij. or ix; and of the second from vi. drops to xij.

Of

Of the Preparations made out of Vipers.

WE shall close this Chapter of the Chymical Preparations of Animals, by examining the several Remedies which Vipers do afford by the help of Chymistry: for this Reptile is endowed with a very subtile and efficacious Volatile Salt for the cure of several obstinate diseases. *Galen* doth make several relations of leprous bodies cured by the only drinking of Wine wherein Vipers had been suffocated. *Cardan* doth also prove the same truth, in a consultation which he sent to *John Archbishop* of S. *Andrews* in *Scotland* containing this sense. I will declare you a very great secret for the cure of consumptive bodies, leprous, and corroded with Pox, &c. which fatteus and restores them against all hope. Take a well chosen Viper, cut off the head and tayl; pull off the skin, throw away the entrails, and preserve the Fat by it self: cut it in bits as you would do an Eel, and sod it in a sufficient quantity of Water, with Benjeethin and Salt, adding towards the end some few Parsley leafs: being well sodden, strain the Broth, and in that Broth boyl a Pullet, and give every morning to the Patient Bread that hath been dipt in that Broth, and let him eat the Pullet: Continue thus seven dayes together; but keep the Patient either in a Stove, or a very warm Room during the time, and anoint him with the Vipers fat all along the back-bone and other joynts of the body, as also the arteries of the feet, hands, and breast. This way are the Ulcers of the Lungs cured, for they are driven to the surface of the skin in the form of Pustula's and other eruptions. *Quercetan* doth also speak very advantagiously of Vipers in his Dogmatical Pharmacy. Several other Authors have followed these two: but we must acknowledge here, that they have all stumbled against the same rock, holding the Viper to be venemous either wholly in it self, or at least in some parts.

But the Experiment related by *Galen*, must confound this opinion of the Ancient and Modern Authors, since that Viper was whole and alive, when suffocated in the Wine which did cure his Leprousy. The *English* Ladies herein shame the vulgar of Physitians themselves, making no scruple to drink of that Wine, where-

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in living and intire Vipers have been suffocated, to keep themselves in their plumpness. Sound disposition of Body, and quickness of Spirits, hinder the injury of wrinckles, and preserve their flying beauty. But that which is yet more remarkable in this particular, is, that the *Italian Curtesana's* preseve themselves against the Venerian disease, and its sad accidents, taking every Spring and fall, Broths, made of Pullets, Vipers flesh, and China root. None amongst our Modern Physitians, but the famous *Poterius*, and the most learned and subtil Philosopher *Van Helmont*, have well explained wherein the poyson of Vipers doth consist; which is only placed in the sling of choler, which prints in the imagination of that Animal an envenomed Idea.

Fabritius Hildanus, and many other grave and renowned Authors, do by their observations authorise the truth of the effects; but the two quoted only have taught us the true seat of poyson, which cannot be but in the Spirit of the Animals life; as the *Italian* Proverb hints very well; which saith, that *Morta la Bestia, morto il veleno*, since Man it self, Dogs, Horses, Wolfs, Cats, Pole-cats, *&c.* leave no venemous impression by their bitings, but when they are angered, and their Imagination poysoned with a desire of rage and vengeance.

And let this hint suffice by the by, to prove more and more, that all the Vertue of things is placed in the Spirits and Life, which are nothing else but a portion of the Universal Spirit, and corporified light. We come now to the Preparations made of Vipers, and of their parts.

The manner of Desiccating Vipers, to make the Powder and Trochisks thereof.

THe election of Vipers doth only consist in taking them after they have forsaken their holes, and are more full and fed; the regard of their sex is indifferent, provided the female is not big with young ones: they are to be chosen in high elevated and dry places, leaving them that breed about Ponds, or Morish and watery places.

Take of these Vipers as much as you please, pull off the skin and the entrails, keeping the Heart and Liver; then put them in

a large Glass Body or Cucurbit, where you may have sufficient room to place and order them upon small sticks, that they may not touch one the other: place your Glass with a Head in *Balneo*, and so deficcate your Vipers; having first strewed over a little Nitre very pure, or Flowers of Salt Armoniack; preserve the Water which shall issue forth from it, for such uses as we shall hint hereafter. *Nota*, that every 12. hours your Vipers must be turned in the Glass, that they may dry equally.

Thus shall you have a matter to make the true Powder of Vipers, not full of thrids or filaments, which may be administred in its own Water, or in Wine, or Cinamon, or Sassafras Water from ℈ i. to ʒ i. in all Fevers, but particularly in pestilential and contagious ones, and in the Plague it self, as also against Epilepsie and Apoplexy: but the other following Preparations are preferrable to this Powder.

But if you will prepare Trochisks, take other Vipers, and pulling off their skins and entrails, cut them in pieces, and boyl them in the water, which you did preserve in the preceding distillation, in a hot boyling *Balneo*, in a Glass Body covered with its Head, until this Broth comes to be of the consistency of a Jelley: with this Jelley beat in a Marble Mortar the Vipers Powder, and reduce it to Paste, which you shall frame in Trochisks or small rolls, having anointed your hands with Peruvian Balsom, Oyl of Cloves and Nutmegs made by expression: Those that will rightly prepare Triacle, may make use of these Trochisks instead of them which the ancient Dispensatories do prescribe, which are only crumbs of Bread, and Vipers Flesh destituted of all the faculties, which reside in their Volatile Salt. The Powder of these Trochisks is preferrable to the single Powder, because they are impregnated with the proper substance and vertue of the Animal, besides that they are less apt to corrupt then the Powder. The *dosis* is from ℈ ß to ℈ ij. in the Waters above-mentioned.

How

How the Spirit, Oyl, volatile Salt, volatile fixed Salt, sublimation of that Salt, and the fixed Salt of Vipers, is to be prepared.

I Should be unjust to attribute unto my self the manner and invention of all these Operations, since the glory is lawfully due to the learned *Zwelpherus*, Physitian to his Imperial Majesty, yet living, who by his accurate learned and judicious Notes, upon the *Auspurgian Pharmacy*, hath purchased to himself an Immortal name; having corrected the defects of the ancient and modern *Pharmacy*, with so clear a judgement and so uncontrollable and confirmed an experience, that all those which will follow the operations of the noblest *Pharmacy*, must ever acknowledge themselves his debtors.

I will only hint, in the way, that the invention of Volatilising again the volatile Salt of Vipers is mine, after it hath been as it were fixed by an acid substance. And as this gallant man hath been pleased to make his Experiments become publick, thereby to oblige Posterity; so would I not conceal the secret of this operation, since thereby a great benefit may accrew to poor diseased bodies, although the invention of it be not vulgar, and does particularly belong to my discovery.

Take well fed Vipers without distinction of sex, pull out the Entrails, and separate the Heart and Liver, dry them in a Stove or Oven, moderately heated, and being thus very well dryed, beat into gross Powder, and fill therewith a Glass Retort, which put in a close Reverberatory, upon the cover of an Earthen Pot turned up-side down, upon which put two handful of Ashes or Sand, to fence the Retort instead of lute, and hinder the first brunt and violence of fire; then cover your Reverberatory, and fit a capacious Receiver to the Neck of the Retort, and give a graduate fire, until the Retort grows red, and the Recipient cleareth during the violence of the fire, which is an evident token that all the vapours are dispersed, that is done in less then 12 hours. When all is cooled again, you shall find three different Substances in your Receiver, which are the Phlegm and Spirit mixt together; the Oyl black and stinking, and the volatile Salt sticking to the sides of it. The volatile Salt which is about the sides, must be

dissolved with the spirituous Liquor in the bottom, then must this Liquor be separated from its Oyl by filtration, put afterwards the Liquor impregnated with Volatile Salt, in a high Cucurbit or Glass Body covered with its Head, and exactly luted in the Joynts, and adapt to it a small *matrasse* for Recipient, then put your Glass in a Sand or Ash Furnace, and regulate well the fire, lest the bitter and stinking Water, which hath dissolved the volatile Salt ascend within: the sublimation being ended, separate the Salt curiously, and preserve it in a Viol stopt with Cork dipt in melted Wax, upon which pour a little of melted Brimstone, if you will preserve this Salt, otherwise it will vanish in a short time, by reason of the subtile and penetrating nature of its volatile and aerial substance. It is this volatile Salt that possesseth so many rare vertues and wonderful effects; for it hinders all corruptions which use to breed in us, opens all obstructions of the humane body, dissolves and carries away all aguish distempers, and particularly the Quartane, being exhibited from 6. to 10 grains in Sassafras, Juniper, or Elder Water, one or two hours before the Fit: it is moreover given in the Plague, and all other contagious Diseases, in Emulsions made of Columbine, Radish, *Carduus Benedictus* seed, to which are joyned Amands, Kernels of Pine-Aples, Sugar, and a little Rose or Cinamon Water. It is also singular against Epilepsie and Apoplexy: for it searches into the deepest parts of the bones and marrows; it is to be exhibited in Emulsions made of Water of Lilly Convally, Piony Flowers, Lime-tree, Piony-seeds, Almonds, Kernels of Cherries, Peaches or Abricots. The *dosis* is ever from vi. to xij. grains.

But because this Salt is of a very unpleasant smell, and unsavoury taste, Artists have been long about seeking the means how to despoil it of these two qualities, as also the Salt of Urine. yellow Amber, Harts-horn, and of the parts of man: but hitherto, none hath attained to this skill and perfection, without depriving these volatile Salts of their subtility, and by consequence, their penetrating and diaphoretick vertue. The learned and experienced *Zwelferus* alone, hath well attained the Art of this useful and curious operation, after he had tryed first without success several other different wayes. But the *dosis* of this Salt given in a larger proportion, shows enough, that

that this purification doth fix it in a manner; and that although it be fixed, and more pleasant to the taste, it is notwithstanding of less efficacy. And as this great and charitable Physitian provokes the sons of Art, to impart their Inventions, to render it again more volatile, and take away that acidity that fixes it: I shall add to that Preparation, which we owe to his free communication, that which my own Industry and the study of natural things have taught me.

How Volatile Salts are to be stayed, fixed, and purified.

TAke such volatile Salt as you think fitting, put ℥ iiij. thereof in a high Cucurbit, which cover with its Head, on the top whereof let there be a hole of the bigness of a Goose-quill, lute exactly the Joynts, and put in the said hole a fitting Quill, stopt with *Spanish* Wax, or Gum-lack; then fit a small Recipient to the Limbeck, and softly pour by drops of very well rectified Spirit of Salt, upon your volatile Salt which is to be wrought upon, and continue thus, until the noise and strife between the sharp Spirit and volatile sulphureous Salt be over, then shall you perceive an union made of these two several Substances converted into Liquor; which if it appears to be impure, must be filtrated, if not, stop only the hole in the Limbecks Head with a Glass stopple, covered with a Bladder dipt in white of Egges: then fit your Vessel again in *Balneo*, and draw off the moisture, till but two parts remain, if so be you would have your Salt crystallized; if not, draw all the moisture from it, and you shall find ℥ iiij. of Salt, fixed in a manner in the bottom of the Cucurbit or Glass Body, and if you have noted the weight of your Spirit of Salt, you shall find as much of tastless Liquor, and full of *Empyreuma* in the Recipient. The Salt hath a fragrancy and very good smell, a sharp savour, and a Saline taste: The *dosis* of which is to be from ℈ ß. to ℈ i. It hath a vertue that penetrates to the remotest parts from the first digestion, without any alteration, purifies the bloud, and dissolves all excrementitious matters, which seem already to have incorporated themselves with our parts, but chiefly in gouty Bodies: it expels Urine, Sand, Gravel and viscous humours from the Kidneys and Bladder, evacuates

cuates all matters by which melancholick affections are generated, resists better then any other Remedy to Putrefaction, opens all manner of Obstructions, cures all kinds of Agues, is the true preservative and curer of the Plague; and, to end in a word, the remainder of its vertues, blots out and takes away all the ill Ideas and Impressions, which have imparted their character to the Spirit of Life, the true seat of Health and Sickness: The *dosis* may also be augmented or diminished, according to the age, strength, and nature of the diseased and disease. But as *Zwelpherus* hath been acquainted with the way of fixing the volatile Salt, by the help of an acid to take away its evil tast and smell, we will now declare the manner to draw off again this acid, and sublime the volatile Salt, restoring it to its first subtile nature, and encreasing by consequence its penetrating vertue, without contracting any evil savour or smell.

The manner of subliming again the Volatile fixed Salt.

TAke ℥ iv. of volatile fixed, and mix it with ℥ i. of Salt of Tartar, made by calcination, and well purified; put them in a small Glass-body in Ashes; cover the same with a fitting Head, and fit to it a Recipient, if the Head hath a Limbeck, (for if it be a blind Head, there is no need of it): lute exactly the Joynts, and give a graduate fire, until the sublimation be ended: so shall you have the most subtile volatile Salt that may be found in Nature, and which hath a perfect analogy and peculiar sympathy with our spirits, which are the subject of our natural heat, and radical moisture. But note by the by, that *all Alkalies have this propriety to kill acids*, and never to prejudice volatile substances. The *dosis* of this Salt can be but from ij. grains to viij. by reason of its great subtility, which is so penetrating, as it cannot be preserved, unless mixed with it own Liquor, or being reduced into Essence, which preparation shall be taught hereafter. It is good for all the diseases above related, but principally, that of Harts-horn and Vipers, which ought to be considered as one of the Keyes of Physick.

How

How the Essence of Vipers, with their true volatile Salt is to be prepared.

TAke abovt 50. or 60. Hearts and Livers of Vipers, dryed in the manner above related; beat them to Powder, and put in a double Glass, pouring upon Alkool of Wine, until it swims six inches above the matter; then having covered your Glass, and luted it exactly, put it in a moist vaporous Bath, to digest with a fitting heat three or four dayes, to extract all the vertue thereof: that done, put all in a Glass-body in *Balneo M.* and with a slow heat distil the Spirit, cohobating three times, and at the fourth distil all off to the dry bottom; put in every pound of this Spirit ℥ i ß. of the true volatile Salt of Vipers, ℥ i. Amber-grice essentified, as we shall describe it hereafter, ʒ ß. of Oyl of Cinament, and as much of the true Essence of the external and fresh rind of Limon; put all these substances together in a Pelican, to circulate the space of 8. dayes; after which, put it up carefully in Glass Vials, as it becomes so precious a Remedy, and stop it with all requisite care. All the vertues which we have attributed to the volatile Salt alone, may lawfully be attributed to this noble Remedy; it hath even this advantage over and above, that it may easier be preserved then the volatile Salt; and moreover, it is one of the best and securest Antidotes in the world, worthy of the closets of greatest Princes. The *dosis* is from ℈ ß. to ℈ i. in Wine, Broth, or other convenient Liquors.

The manner how to make the simple Theriacal Salt, impregnated with the Alexiterial and Confortative Vertue of Vipers.

THe Ancients, and *Quercetanus* after them, have spoken of these Salts, and made a particular account thereof: but the ancient way of preparation, and the correction of it made by this famous Physitian, are rather to be pitied then imitated, though he ought not to pass without praise and commendation, for having excelled in his age, and endeavoured to find the truth with all his power; but as we have got upon his shoulders, and the discoveries of modern Physitians, industrious about the search of the secrets of Nature,

Nature, and our own experience having now better informed us, it is but Justice and reason we should impart it to others.

Take then ℔ ij. of Bay-salt, white and depurated, or as much *Salgemme*; dissolve it in ℔ x. of River-water well setled, then add 2 dozens of Vipers, with the Hearts and Livers, their skins and entrails pulled away: boyl all together in Sand, until the Vipers do easily get off from the bones, squeese all, clarifie and filtrate, then evaporate in a hot *Balneo's* vapour to the dry bottom, and keep it for use in a well stopt Bottle. Of this Salt, you may give to eat to healthful and sick bodies; to the one, as a Preservative; to the other, as Restorative. It is chiefly of great use in Chronical Diseases, where the mass of the bloud is to be purified, and the vice of digestion rectified. Those that will have it yet more specifical and stomachal, must add the distilled Oyls of Cinament, Cloves, and Nutmeg-flower or Mace, with a little Sugar in Powder, which will be as an uniting mean to mix it perfectly with the Salt. ʒ i. of ãã of these Oyls, with ʒ i. of essentified Ambergrice is required to each ℔ of Salt, for in this manner the Salt will be much more efficacious. Its *dosis* shall be from x. grains to ʒ ß. in Broths, fasting in the morning, to cleanse the stomach from all preceding superfluities, which are for the most part the occasional causes of diseases.

Another Preparation of a Theriacal Salt much more specifical then the fore-going.

TAke *Scordium* and small Centaury fresh pluckt, ãa. ℔ i. Roots of *Angelica*, Zedoary, *Contrayerva*, *Asclepias* ãã. ℥ ij. shred the Herbs, and pound grosly the Roots, then boyl them in *Balneo* in a double Glass, in ℔ x. of distilled Water of *Carduus Benedictus*, and juyce of Borage and Bugloss: being cooled, strain the decoction, and put it again in the Vessel; then add a dozen and a half of fresh prepared and cleansed Vipers, with their Hearts and Livers, as also the Salts alkalized of Wormwood. *Carduus B.* small Centaury, and *Scordium.* ãã ℥ viij. shut up the Vessel and lute it, and let it boyl the space of half a day, and all being cooled, clarifie it, filtrate, and evaporate in the vapour of a Bath in a Glass-body with its head to a dry bottom; so shall you

you have a most rare and pretious Salt, and a water endowed with many singular vertues; for it is a sufficient Remedy to eradicate all manner of Agues and Feavers; it is a specifick in all epidemical Contagions, and malignant Diseases. The *dosis* is from ℈ i. and 3 ß. to 3 i. you may also add to this Salt the same distilled Oyls and essencified Amber-grice, as we have declared in the precedent Preparation of Theriacal Salt, and here with this Operation shall we conclude this Chapter of the Chymical Preparation of Animals.

Chap. IX.

Of Vegetables and their Chymical Preparations.

In this Chapter we intend to make it manifest, that the haters and persecutors of this noble Art, are very much to be blamed, when they discovered it; and that their upbraidings done to the Artists and Practitioners of it, are false and scandalous, since the Preparations which we are to describe, are capable to bring the most envious to a sober mind, and convince the most obstinate, that the Pharmacy of the Ancients had never any preparation coming nere its excellency. It is upon the several parts of this noble, pleasant, and ample Family of Vegetables, that the true Pharmaceutick shall ever find matter of imployment, and admiration of the Creators works. But, as the design of our abridgement, doth not permit us to make the examination and resolution of all Vegetables and their parts; we shall content our selves to give one or two examples, of the manner of working either upon the whole Vegetable, or the parts thereof, which are Roots, Leaves, Flowers, Fruits, Seeds, Rinds, Woods, Grains, or Berryes, Juyces, Oyls, Drops, Rosins, Gums. We shall give a Section to each of these parts, the better to explain the manner of working, and to avoid confusion.

But before we come to the matter, I have thought necessary to say something of the abuses dayly committed by Apothecaries not fully enlightned with the knowledge of Chymistry, and which are only guided by blind men, admiring and suffering all the defects of their ill preparation, want of a true information of the nature of things, and a right apprehension of Physical knowledge, the true gate to Medical skill. Whence it is less to be admired, that blind men guided by other blind, fall themselves, and dayly cause so many other to fall with them in the pit. And as *Germany* hath *Swelferus* Physitian to his Imperial Majesty, who hath reformed Pharmacy, in those learned and accurate Observations he hath made upon the *Auspurgian* Dispensatory; so have we in *France*, *Monsieur Vallot*, first Physitian to our Monarch, who hath laboured, and labours yet dayly, to cultivate the field of Physick, and vulgar Pharmacy, and to purge it from those thorns and thistles, which the ignorance of Chymistry hath caused to grow, and too much over-spread the same.

This truth will I illustrate by the example of distilled Waters, and that of Syrups, because I know, that in these two Preparations, vulgar Apothecaries commit the greatest faults for the most part, either through ignorance, malice, or covetuousness, to the great dishonour of Physick and Physitians, the discredit of their Profession, and that which is yet worse, the great damage of the common good.

First Discourse of distilled Waters.

IF Substances are not throughly known, it is impossible to have any good success in their Preparation, since from this knowledge doth absolutely depend, the exact and most commendable way of Operation: and, if that be necessary in all Chymical operations, much more is it in those which concern Vegetables, and chiefly the manner of their distillation without wasting any of their vertue, which hath induced me to believe it necessary, to give a general Idea of the nature of Plants, before I come to speak of their particular preparation.

We

We shall not speak here of Plants according to the sense of many; following the trace and steps of *Botannick* Authors, which for the most part have left us nothing but the external Picture of the Plant, and the divers degrees of their qualities, without taking any pains to teach us the differences of the intrinsecal nature of the same Plants, and much less the true manner of Anatomizing them, to separate and extract from them all what is good and serviceable, and also what is unprofitable.

To begin methodically; we must explain the nature of Plants, as they are in themselves, by the division we make of them, according to the degrees of their increase and perpetuation: for, they are either long-lived, or annual: The Long-lived (or vivacious) are those whose roots in the two Æquinoxes do attract the universal nutriment to themselves; in the Vernal Æquinox they attract what is necessary to bud out and vegetate, to the full perfection of the Plant, which ends by her flower and seed; and in the Autumnal Æquinox, they attract wherewithall to repair the exhausting of their strength, caused by the Suns heat, and of the other Stars and Planets. This Note is not made by us without necessity, being absolutely usefull, to acquaint the Artist with the most proper and fitting time to gather the Plant with its root, or to leave the same as unnecessary; for, if he hath need of the Plant a little after it is sprung out of the Earth, he must meditate with himself, and make a judicious reflexion, that this Plant is not yet furnished with that saline and spirituous nutriment, the Principle whereof is contained in the root, and that so his Operation will be lost upon this Plant; since what he may extract of it, is destituted of that strength and vertue which is desired by the Physician, and much more of that which is requisite to shew its efficacy against the disease; his recourse then shall be to the root, which containeth the Volatile Salt, the very soul of the Plant, and possessing in it self the vertue and efficacy of the whole. But if he desires to work upon the same Plant, when it hath almost attained to the period of her perfection, and that it hath but yet a small portion of its vertue left, which does administer yet a kinde of languishing life, until it hath recovered its vertue, strength and new life, in the time of the Autumnal Æquinox, to the end that in Winter it may evade

destruction, and be renewed or born again in the Spring. By which it appears, that when the Plant is in her full state, as they speak commonly, the Artist must choose it between flower and seed, if he is desirous to enjoy the full vertue thereof; for when it hath attained to that perfection, the stalk, leaf, flowers, and the first seeds, are yet full of vigour and vertue, which they communicate to the Liquor extracted by distillation, which being a Volatile and Mercurial Salt, and an Embryonated Sulphur, containeth all the vertue of the Plant; for that which is extracted from it, is a spirituous Water, which preserves it self very long, with the proper taste and odour of its subject, upon the surface of which swims an æthereal and subtile Oyl, which is that Embryonated Sulphur, mixt with part of its own Mercury. But if the Artist doth expect that the Plant should shoot and concentrate all its life in the seed, and that this Sulphur which was but embryonated, should become actuated and fully ripe, he must then in such a case reject the root, stalk, and leaf, because they have no more in themselves, that vertue which they had before. Here the Artist must meditate anew, and consult with the method of Natures action; for, the seed being once perfected, hath no more that Mercurial and saline moysture, which caused her vertue more easily to be extracted, but all is to the contrary reunited, as it were, and lockt up under the skin of the kernel and the seed; and moreover, these seeds are of three differing kinds; for some are muscilagineous, and slimy, or like unto a Jelly; in the first of these, the Mercurial Salt and Sulphur are more fixt then Volatile, and so these seeds will not yield their vertue, but by the means of decoction; for, as they are clammy and sticking, the vertue thereof doth not ascend in the distillation: The other are milky, of a white and tender substance, whence Oyl may be extracted by expression, if so be they are well ripened and dryed; but their best vertue is only to be extracted, when you draw the Lacteous substance, or emulsion, out of it: For, this second kinde of seed is equally mixt with Volatile Salt and Sulphur, which easily communicates it self to Water; the Artist must not hope, by distillation to extract the vertue of this kinde of Seeds, no more then of the former. But there is a third kind of seed, altogether oleaginous and sulphurous, which communicates

cates

cates to the Water neither any Mucilage, viscosity or clamminess, no more then whiteness; but to the contrary, their substance is compacted, drye, and astringent by a Sulphur predominant over the Salt. The Artist must distill this kind of seeds, either alone, or with addition; alone, if externally to be used; with addition, if it be to administer the remedy, which he pretends to extract internally to the Patient. These three differences or distinctions of seeds, do sufficiently shew, that it is required for a Chymical Apothecary to be very well vers'd in the knowledge of Nature, thereby to make the necessary observations upon the fixt and volatile parts of substances, whereupon he operates, that his work may orderly proceed, and not be unnecessarily confounded.

The same Notes and Theorems are to be applyed to annual Plants, which are not preserved by their root, but are every year to be renewed by their seed. Now of these two sorts of Plants, either vivacious or annual, as well as of Seeds, there are three different kinds, *viz.* Those that yield no smell, of which some are almost insipid or tastless, or acid, or bitter, or severally intermixed of these two last qualities, and others which have a taste by themselves sharp and subtle; all these kind of Plants are green and tender, whose vertue begins to appear in the prime of their vegetation, because they do abound in Juice, which contains in it self an essential tartarous Salt, which with time and heat thickens into a Mucilage, from whence, but with great difficulty, they cannot be separated; therefore must they be taken whilest they are yet juicy and tender, so as to break easily upon the least bending of their stalk. The second kind of Plants is altogether opposite to the first; for, the Plant newly growing out of the ground is endued yet with little of vertue, even a good while after; for, when they are yet green and tender, they are tastless and inodorous, have no taste properly but of grass, because the superfluous humour is yet predominant, and that their vertue doth not consist in an essential tartarous Salt; but this kind of Plant carries with its natural nutriment, a spirituous and volatile Salt, mixt with an Embryonated Sulphur very subtle, which never is reduced from power into act, nor ever discovered by the taste or smell; but after this superfluous humidity is by heat con-

concocted and digested; then begins to appear the vertue of these Plants, discovered by the smell and taste, but particularly by the smell. The proper time to work upon this second sort of Vegetables, is when their stalk begins to grow drye at the foot, when they are yet covered with flowers, and begin already to shew some little part of their seed. The third kind of Vegetables is mixt and composed of the two first, for they have a taste from the first moment of their vegetation: But they are without smell, and acquire very little when they are in their perfection; or, if they have any, it appears only when they are pressed, grounded or rub'd with, because their Sulphur is overcome by a slow and gross viscosity, which contains much Salt, and appears by a bitter and biting taste, or a sweetish sugared savour like unto Honey, the Vertue of this last kinde, without previous digestion or fermentation cannot be well extracted. These Plants are to be gathered, when their flower is yet upon them, if so be they are bitter and without smell, but if they bear fruit, berries or grains, their maturity is to be expected, because it is in these parts that the principal vertue of the whole is maintained, and it is in the center of the sugared Muscilage, and of a Honey-nature, which is in these fruits, that an Artist must seek the vertue of these wonderfull Mixts.

Now it is not enough for us to have given these general notions, unless we make some particular applications, which may serve us for a pattern and guide upon each of these kinds; of integral Plants or their parts. We shall then in the first place treat of Juicy, Nitrous Plants, that is to say, those which participate of a Salt, much of the nature of Salt-peter, or of that Salt in the Earth which is the Principle of Vegetation, and seems to have received yet very little of alteration in the body of these Plants, only that it begins already to partake a little of Tartar and its feculency. Plants of this nature are, Parietary, Fumitory, Purslane, Borage, Bugloss, Mercury, Night-shade, and generally all succulent Plants, which are neither acid nor bitter to the taste; but whose savour is only mixt with a tartness, compounded of acidity and bitterness; qualities neer to the taste of Salt-peter.

Of

Of the preparation of Nitrous, Juicy Plants, how to extract the Juice thereof, the Liquor, Water, Extract, Essential Nitro-tartareous Salt, and the Fixed Salt.

TAke a good quantity of any of the Plants above mentioned, which you must by parcels beat in a stone, wooden or Marble Mortar, untill they be reduced to a kind of Pap, that is to say, untill the parts of the Plants be sufficiently disunited and confounded together, so that expressing the same in a Hair-bag, Tammy, or Linnen Cloth thinly woven, you may extract all the Juice, which being thus extracted, you may run again through a closer strainer, and then let it settle, untill in a manner it be depurated by it self; after which you must softly pour by inclination, this Juice so depurated in Cucurbites, or Bodies of glass, fitted for Limbecks, and place in *B. M.* in case you desire a good Extract and but a weak Water, because the heat of the said *B. M.* is not strong enough to elevate the essential Nitrous Salt of the Plant, which causes it to remain with the thick Juice, properly called Extract, when reduced to a thicker consistency, in the bottom of the Glass. But if you desire a long lasting Water, and animated with its spiritualized Salt, you must then place your Cucurbites in Sand, because this degree of heat is capable to elevate and volatilize the purest and most subtile portion of the Salt, and raise it towards the latter end of the distillation, with the last aqueous vapours: nevertheless, great heed must be taken, that the heat towards the end be not too violent, and that the residence in the bottom of the Cucurbit become not totally dry, or cleave to the Glass in danger of burning. But before you come to the end of your Operation, have a special care that your Juice may be exactly defecated, for there are two Separations performed, when by the heat of *B. M.* or sand the separation of the radical substance of the Juice of the Plant is made, from the feces or sediment which falls in the bottom of the Glass, and the skimm which rises above; wherefore this Juice so depurated must run through a strainer of Cloth, commonly cal'd a Bag, or *Manica Hippocratis* in the Shops: after which, the Juice being so separated of all its Heterogeneities, and

and of the forain mixture of terreſtreity, the diſtillation in *B. M.* or Sand muſt be continued, according to the intention of the Artiſt, untill this Juice be reduced to a conſiſtency of Syrup, which is to be put in a freſh Cellar, or ſome other cool place, untill the Nitro-tartareous Eſſential Salt be reduced to Cryſtal, and ſeparated from the viſcoſity of the inſpiſſated Juice, which muſt be drawn again by a ſoft effuſion by inclination, then put a ſecond time in *B. M.* or Sand, to evaporate it to the conſiſtency of an Extract, which ſhall yet contain great ſtore of Salt, in caſe the firſt Operation was in *B. M.* and will be uſefull to the making of Opiats, according to the indication which the learned and skilfull Phyſician or the Artiſt himſelf will take, when they intend to make uſe of it in any diſeaſe, according to the nature or vertue of the Plant whereupon the work is performed. And thus much for neceſſary Obſervations, concerning the purification of the Liquor of Juicy Plants, diſtillation of their Water, and the manner of making their eſſential Salt and Extract.

We come now to the preparation of the fixed Salt; to this end you muſt dry the Cake, or remaining part of the Plant after the expreſſion of the Juice, then calcine and burn it well, untill all be reduced to whitiſh gray aſhes, whereof you muſt with river or rain-water make a Lye, which muſt be filtrated through gray Paper not much ſtiffened, that the ſtiffening or glue may not hinder your Liquor to run ſwiftly and eaſily thorough. After the firſt Lie, impregnated with the Salt of the Aſhes of the Plant, hath been filtrated, you muſt pour new water upon the Aſhes, to extract the remainder of the Salt, untill the water comes off as inſipid and voyd of taſte as it was powred firſt; which is a manifeſt and evident ſign, that no portion of Salt remains in the Aſhes, which ſeem to be no more then an uſeleſs Earth, or as ſome do call it, the *Caput Mortuum* of the Plant upon which you have wrought: but I will prove the contrary nevertheleſs, by the following relation of what happened to me at *Sedan*, after I had wrought upon a parcel of Fennel: For, being poſſeſſed of an opinion, as others are, that theſe Aſhes deveſted of their Salt were totally unuſefull, I cauſed them to be thrown away in a back-yard, where for the moſt part, Dung and other Immundicities were caſt; but the next year by what happened

unto

unto me, I knew I was deceived; for great store of Fennel grew in that yard, whereof, after it had attained to its perfection, I drew great store of distilled Oyl; by which experiment I was taught with that excellent Philosopher and Physitian *Van Helmont*, that the Median Life of things is not so easily destroyed as it is imagined, and that according to this Axiom of Philosophy, *Formæ rerum non pereunt*; because both the Art and Artist do but follow from far our Mother Nature; and this is sufficient to convince us, that we apprehend not the least of her wayes or contrivances, much less any of those which she uses towards the attaining her own ends. But let us return to our purpose after this digression; which, because it is in its proper place, I thought more fitting to make here: After then you have gathered together all the Lyes well filtrated, you must evaporate them in Jugg-mettle dishes upon sand, untill they thicken to a skin, or incrustate by reason of the Salt, which then abounds; then must you begin with a *Spatula* to stirr and agitate softly the Liquor, untill the Salt be wholly dryed, which then being put in a Crucible, reverberate in a Wind-furnace between kindled hot burning Coals, untill it growes glowing red on all sides, taking nevertheless exact heed that it melt not; this done, take off the Crucible from the fire, let it cool, and then dissolve the Salt in the Extracted Water of the Plant which hath yielded the said Salt, that you may once more filtrate it, purifie it, and restore that portion of Volatile Salt which ascended in the distillation; after which, you must put this dissolution in a Glass Cucurbit covered with its head or Limbeck, and draw off again the Water from that Salt upon Sand, untill it begins to contract a skinne, then cease the fire, and put the Vessel in some cool place, to cause the Salt to Crystallize, and thus continue drawing off the Water upon Sand, and causing the Salt to shoot in Crystals, untill it be all drawn away, and so shall you have a pure and cleanly Salt, fit for use when you have occasion: but the chief use of it, is to put part thereof in the Water extracted from the Plant, to render it thereby not only more active and efficacious, but also to make it more durable, fitting for keeping several yeers, without any loss of its vertue. The proportion may be of ℥ ii. upon every pint of distilled Water. The general use and faculty of the

fixed Salts of Plants made by calcination, evaporation, reverberation, depuration and cryſtallization, is moderately to looſe the Belly, draw away Urines, and take off all obſtructions from the lower parts of the body: the other particular vertues may be taken or aſſigned, according to the nature of the Plant from whence they were extracted.

And as we have declared the manner of purifying fixt Salts, ſo muſt we do alſo in ſhewing the way, of drawing off and ſeparating a certain viſcous and coloured ſliminesſi, which is found even amongſt the Eſſential Nitro-tartareous Salts, in their firſt Cryſtallization. It is thus performed; You muſt diſſolve them in clean, common Water, and percolate three or four times upon a portion of the Aſhes of the Plant whence they were extracted; which is done upon two intentional ends: For, the the Artiſt muſt not work blindly, or without being capable to give an account, wherefore he doth, or doth not ſuch a thing: The firſt intention is, that the Eſſential Salt which is not yet purified, and for the moſt part is found mingled with the Extract, without having been capable to take the Idea or Character of Salt, by reaſon of the hinderance cauſed by the clammineſs of Inſpiſſated Juyces, takes in his way as it paſſes through the Aſhes the fixed Salt of its own Body, which imprints upon it its own ſaline Idea, and ſo cauſes it eaſily to cryſtallize, after the ſuperfluous Liquor is vapoured away: The ſecond intention is, that the Aſhes may preſerve the thick and clammy body of the Extract in themſelves, and ſo the Water, impregnated with the eſſential and fixt Salt of the Aſhes, may paſs cleanlier and purer by the re-iterated Percolation. This being ended, you muſt ſlowly and gently vapour away your Water in a Diſh of Juggmettle in Sand; not till the skin begins to cover it, as we have ſpoken when we treated of the Fixed Salts, but evaporating away the two thirds, or the three parts of the Liquor, which muſt be ſoftly and without ſhaking the bottom gently powred in a clean Earthen Diſh, ſo as if by the action of heat any ſmall Atoms or Corpuſcles ſhould happen to ſettle and make a ſediment in the bottom, they ſhould not mix with the clear Liquor, to hinder the purity of Cryſtallization in the Salt. The water which ſhal ſwim above the Cryſtals,, muſt be drawn off, and the Evaporation

ration re-iterated, untill half of the Liquor be consumed away: and so continue till you have got all your Salt turn'd to Crystals. And if so be this way of Purification doth not satisfie the Artist, and that the Crystals want the cleanliness and transparency desired; he shall put them in a Crucible made of the least porous Earth which is to be found, and let him melt his Salt in a Wind-furnace, that the fire of Fusion may consume all what may hinder the Crystallization to be done with the requisite cleanliness and transparency: this Salt being so melted, must be poured in a very clean brass Mortar, warmed a little before, that the too violent heat of the melted Salt should not cleave or split it; when it is cooled, dissolve it in a sufficient quantity of the Water distilled from the Hearb whereof the Salt is extracted; but the quantity of Water must not exceed that of the Salt; otherwise the third part or half must be drawn again by Distillation, or Evaporation; which being done, the Vessel must be placed in a cold Room, and the Crystals will become fair and transparent, with sharp ends and sides much like unto the figure of Salt-peter, and about the same taste: Thus you must continue to evaporate and crystallize, untill the Water yields no more Salt. This Essential Salt must be dried between two Papers, then be put in a well stopt Glass-bottle to preserve for use: It hath the vertue to preserve as well the Water of the distilled Plant as the fixed Salt; and moreover, makes it diuretical, aperitive, and cooling, much better then the Mineral common Crystal made with Salt-peter. It may be given in Broths, or the ordinary drink of the Patient, according to the judgement and discretion of the Prudent and Learned Physician. The *dosis* is from ten grains to a Scruple.

The Preparation of Juicy Plants, possessed with an Essential Volatile Salt, and how to extract the Water thereof, their Spirit, Juice, Liquor, Essential Volatile Salt, Extract and Fixed Salt.

After we have shewn the way of operating upon those Plants which are impregnated with a Nitro-tartareous Salt, and in what manner the Artist is to prepare them, we must proceed in shewing what change of Operation there is in those which are

also juycy, but with an acrimonious, biting, and Aromatical taste, possessing in themselves great store of Essential Volatile Salt: such as are all kinde of Cresses, Water-parsley, Water-Mint, Alisander, *Rapistrum*, Spoonwort, and, to be short, all the kinds of Mustard, and generally all other Plants of this nature, which commonly are called *Antiscorbuticks*.

But as we have sufficiently and amply enlarged our selves upon the preparation of Juycie Plants, which have in themselves a Nitro-tartarous Juyce, and the Operations already described are to lead the way, and serve as for a rule and example in the case of all other Juycie Plants; we have nevertheless thought it necessary to add here some notes, concerning the nature of these Plants, the proper time of gathering them to enjoy their vertues, and furthermore to add the manner of extracting the Spirits of these Plants, by the help of Fermentation, because we have said nothing of it heretofore.

It is then to be noted first of all, that these either wateriſh or cultivated Plants, do from their first orignal participate of great store of Essential Salt, which is of a very subtile, penetrating and volatile nature: and that therefore the Artist must work upon these with more care, foresight and diligence, than upon the foregoing. The reason is, because the other had not in themselves that saline, subtile and Volatile Salt, which easily vapours and flies away, if the Artist doth not use great industry, and take the nick of time to preserve it; for, if too much time be spent, from the gathering of these Plants to the making use of them, their Spirit doth easily contract a heat, and being volatilized by the same, doth flie away, and the body of the Plant remains rotten and useless. This kind of Vegetable then is to be taken when he is newly sprouted, and begins to frame the tufts or *umbella's* of its flowers; for, it is in this very time that the Essential Salt of the Plant is sufficiently exalted, and hath acquired all the vertue which is hoped for; for, with a longer stay, all this efficacy would concentrate it self in a short time in the Seed, by reason of the Plants own heat, and that of the time of the year, as it is specially observed in the bringing up of Water-cresses or Nose-smart. And so much shall suffice to admonish the Artist, what heed he is to take in his Operation upon Plants of this nature,

nature; for the remainder, let him follow the Prescriptions we have already given above: and specially not to use the Crucible for the Essential Volatile Salt of these Plants, otherwise all this Salt would vanish away, by reason of its most subtile and most volatile Principle, which participates more of Light and Heaven, then of Water or Earth, which in Nitro-tartarous Salts abounds most.

How the Spirit of Juicy Plants, possessed with an Essential Volatile Salt, is to be Extracted.

After we have given all the necessary observations to work upon Plants of this nature, we must end our discourse or treaty thereof, by the manner of well extracting their Volatile Spirit by the help of Fermentation; which is thus performed.

℞ as much as you shall think fitting of one of these Plants, and cleanse it from all its earthliness and impurities, bruise it in a Marble, Stone, or Wooden Mortar, and immediately put it in a great Glass Receiver, commonly called a great *Ballon* by the *French* Artists, and pour water upon it, between luke-warm and boyling, which by the Cooks is called Scalding-water, the height of ½ foot, then stop the neck of your Receiver with a blind-head (or *Vaisse au de Rencontre*;) and thus let it rest about two hours: after which, new water less then luke-warm, and only simpering must be added, to temperate the heat of the first, untill the finger being put in can scarce perceive the heat, and that is the degree which the most expert in the Practice and Theory of Chymistry, use to call Natural or Human Heat, and the true point or instant of Fermentation. Herein the Chymical Artist needs properly his nicest judgement, to take the true nick of time of this soft and amicable heat, because if this degree of heat doth exceed, it volatilizes too suddenly, the Spirit and subtile parts of the Plants upon which he doth work; which, notwithstanding all care and precaution, easily vapours and vanishes away, for all is converted afterwards into an unpleasant acidity, which contains no more of the Volatile Spirit: And if this heat, on the other side, is less than it ought to be, it doth not sufficiently help the Leaven or Ferment, to dis-

dissolve and divide the most solid parts of the Plant, which contain yet in themselves a Centrical Salt, contributing very much to the perfection of the Spirit which is to be extracted out of the Plant; and moreover helps not a little to disunite the viscosity of the Juyce of the Plant, which contains in it self the principal portion of the Essential Volatile Salt, which affords the Spirit; nevertheless, it is safer to fail in the defect then in the excess. Things being put in this temper, Take Barm, or Beer-yest, if you are in a convenient place to recover it; if not, raise Flower dissolved in Water something less then luke-warm, with about ℔ ß. of Leaven or Ferment commonly used every where for Dow in the making of Bread: and when the Liquor is sufficiently raised and puft, and the flower hath got on the top of the Liquor, heed must be had when the top of the Flower begins to crack, for it is a token that the Fermenting Spirit is sufficiently excited, to be reduced from power into act, and to be introduced in the matter, ready to be fermented: but you must note, that your Vessel is not to be more then half filled, otherwise all will run out and fly away, by reason of the action of the Ferment, which by an internal motion agitates and elevates the matters, and in which motion doth consist the power both of Nature and Art. This first Heat, or Ebullition being past, the Artist must suffer the Ferment to act softly and by degrees, untill he perceives that all that Crust which the Fermenting Spirit had raised up, and framed out of the most corporeal and material substance, to be as a Wall or Defence against the evasion or evaporation of the acting Spirits, begins of it self to subside, and precipitate it self, because it is no longer supported by the activity of the Spirits; this most commonly doth happen at the end of two or three dayes in Summer, and four or five in Winter. Here again must the Artist be very carefull to take his time, for as soon as this sign begins to appear, he must distill his fermented matter, unless by his own sloth and neglect, he will lose what Art and Nature had prepared to his hand; for, at that time this Fermented Spirit easily vanishes, and what remains is no more then an acid, useless and unprofitable Liquor. But when the Artist taking opportunely his time, shall have put his fermented matter in the brass Vessel or Body, covered with its

Moor's-

Moor's-head, or Still, exactly lutted the Joints, as much of the Head as the Pipe, taken care that the Water of the Refrigeratory, to condense the raising Vapours, be kept cool and fresh, given the fire by competent degrees, untill the drops begin to fall and follow one the other pretty thick, and having attained this degree, closed the Registers of the Furnace, and stopt exactly the dore of the Furnace, to keep the Fire in that temper; he shall obtain by these means a Volatile Spirit, very subtile and efficacious; and must not cease the fire, untill he hath found out by the taste, that the Liquor stilling down be insipid, which is the true sign upon which he must cease his Operation. If he will rectifie this Spirit, he must distill it again in *B. M.* But in case he hath proceeded by the method we have described, there shall be no need of rectification, because he can separate immediately in the Operation, the first Spirit from the second, and the second from the third, which shall differ accordingly in degrees of vertue and subtility, because they have more or less of mixture of phlegm.

The vertues of this Spirit are wonderfull in all Diseases which have their seat, and are rooted in fixt, crude, and tartarous matters, which he dissolves and volatilizes powerfully: But above all, the Spirit of Spoonwort, as also its Volatile Salt extracted of its Juice, as also the Juice of all Nitro-tartareous Plants: for, these are the two most powerfull remedies which learned men have found against scorbutical Diseases raigning in Maritime Countreyes, and whereof very few can preserve themselves in long Sea-voyages. And though these diseases be almost unknown in the Climes of *France*, yet for the most part such are evil Rheumatisms proceeding from the alteration of the mass of the blood, whose whole Substance is vitiated, and degenerated in a gross and malignant serosity, whose venemous quality imprinted in the membranous and nervous parts, causes wearines, running pains, swellings, and spots in the skin, which are all symptoms and tokens of the Scurvey,; and therefore, as these diseases can only be terminated by Diaphoreticks and Diureticks, recourse must be had to the Spirits and volatile Salts of Antiscorbutical Plants, whereof we have spoken but a little before. The Dosis of the Spirit is from vi. drops to xx. in broth, or ordinary

nary drink of the Patient; that of the volatile Salt, is also from v. to xv. or xx. grains in the same liquors, or is yet better, in the water of the same Plant.

There will be no need of making any great discourse by it self, whereby to give to understand how the little Centaury, Wormwood, Rhue, Penny-royal, Balm, Mint, Flowers of lime-tree, and other Plants of this nature; which in themselves have no moisture when they are possessed with their vertue, and fit to be used, are to be gathered. They are only to be grosly bruised in a Mortar after they are cut, and you have added to each ℔ of the Plant (which you purpose to ferment and distil thereby, to extract the Spirit) x ℔ of water, as we have already related above, observing all the notes and hints also given, which are essentially necessary to the true ordering of fermentation. But in case you purpose only in your distillation to extract hereby the ætherial Oyl, and spirituous Water of the Plant, you must only distil the same Plant without any previous infusion, maceration, and much less fermentation, being shred very small, putting to each ℔ of plant x ℔ of Water.

There is yet notwithstanding a way to preserve Plants of this nature, and even the Flowers themselves, and cause them to ferment without any other addition of mixture: And herein also is the Artist to take great heed, and to be very circumspect: for, unless you will lose time and labour, not one of the circumstances which we shall now relate, is to be omitted. Proceed then as it followeth; Gather the Plant or Flower when they are in their perfection; to this purpose must the Plant be in a state between Flower and Seed; and if it bears no Seed, or be only a Flower, it must be in the height of its smell, and the leaves must firmly hold to their stalks: But the principal Note besides, is, the time of gathering, which is, to gather these things a little after the rising of the Sun, that the dew may not be upon them, which would cause corruption; they must not also be gathered after a rainy-day, or the day before, whereby they might have contracted superfluous moisture, which would cause the same accident. Having these Plants thus conditionated, you must fill great Pots or Vessels of Jugge-metal therewith, well cleansed and dryed, and thrust them in very hard; leaving no empty space, but only so much as will serve

serve to put a stopple of Cork very well fitted to the place, & steept in melted Wax; this done, pour upon the stopple, black melted Pitch, and besmear all round about the mouth of the Vessel, then put it in a Cellar upon Boards, that the Earth may not impart it to much coolness, and the Plant or Flower may not thereby be altered; and so shall you for whole years preserve Plants and Flowers, which shall be fermented by themselves, and will be ready for distillation at all times that there will be any need of it; adding only ℔ x. of Water to every ℔ of Flowers or Plants so fermented by themselves, and you shall extract a Water and a Spirit which shall really be endowed and impregnated with the odour, and all the vertues of the Plant, as we have our selves exemplified upon Plants so digested and fermented in themselves and by themselves, by order of Mr. *Vallot*, first Physitian to the King of *France*; who hath ever ordained those ocular demonstrations to be made in the eyes of the publick; that the vertue of things, and the noblest way of distilling them may be made known, and that it may be truly confessed from henceforth, that this noble and learned way of operation owes its invention to him.

We have nothing else at present, to say, touching the general rules and common observations which the Artist is to make upon the Vegetable in general, and its parts in particular, but that we must impart the way of extracting the Liquors from the whole Plants, or their parts, and exalt them more and more, until they are arrived to the nature of their first being, which will eminently possess all the central vertues of their Mixt, because Art and Nature have preserved in this operation all the seminal powers with which it was endowed, as our great and illustrious *Paracelsus* doth most learnedly explain in a Treatise, which he intitles, *De Renovatione & Restauratione.*

The manner of Extracting Liquors from the Plants and their Quintessences.

ALl Plants are not fit for this operation, because they have not equally a sufficient proportion of Salt, Sulphur, and Mercury in themselves, to communicate to their Liquors and

Quinteſſences, the vertue of renewing and repairing themſelves: and *Paracelſus* himſelf doth only recommend us two, among all the reſt, which may ſerve for a rule and pattern, in all other Plants coming near the nature of theſe two, *viz.* Balm gentle, (or *Meliſſa*) and the great Celandine; among thoſe that come near, we may lawfully comprehend the great *Scrophularia*, the little Centaury, and the vulnerary Plants, as is the *Pyrroha*, *Conſolida*, *Sarracenica*, *Virga aurea*, St. Johns-wort, Wormwood, and generally all Alexiterical Plants, as *Scordium*, *Aſclepias*, Gentian, and the kinds of Centinel, Rhue, Parſley, Smallage, and many more, which we leave to the choice and judgement of the Artiſt, who ſhall prepare them all in the manner we will relate hereafter, and when he ſhall have extracted the Liquor or Quinteſſence, he may uſe it as occaſion ſhall ſerve, and according to the vertue of the Plant.

Of theſe Plants when you intend to prepare any, being in its ſtate and ſtrength, that is, when the Flower is fully blown, but not yet grown to Seed, at that time which *Paracelſus* cals *Balſamiticum tempus*, the Balſamick time. *i. e.* a little before the riſing of the Sun, becauſe in this operation is needful, that ſweet and pleaſant humor which Plants do in the night time attract from the dew, by the magnetical and natural vertue wherewith they are endowed to recruit themſelves with the neceſſary moiſture as much for their ſubſiſtance and ſelf-preſervation, as to reſiſt the Suns heat, which by day time ſucks and dryeth them: when you have a ſufficient quantity of the Plant you intend to prepare, beat it in a Marble Mortar, and reduce it to an impalpable Pap, as near as you can; then put this Pap in a long-neckt-matraſs thermetically ſealed to digeſt in Horſe-dung, the ſpace of a Philoſophical month, which is forty natural dayes; or elſe put the Veſſel in a vaporous Bath, wrapt up in ſawings of Wood, or minced ſtraw during the ſame time, and in a heat analogous to that of Horſe-dung. The time being expired, open your Veſſel to take out the matter which you ſhall find reduced into a Liquor, which being wrung, ſeparate the pure part from the impurity in *B. M.* in a ſlow heat, that there may be a reſidence of the groſſer parts, which you ſhall ſeparate by inclination, or, which is better, by filtrating this Liquor through Cotton by the

Glaſs

Glass Funnel; This Liquor so depurated, put in a Viol Glass, to joyn therewith the fixed Salt, which you shall draw off by expression from the Plant, or from the same dryed: which will serve to encrease the vertue thereof, and make it more lasting, and even as it were incorruptible.

But when the Artist will go further, and purifie this Liquor to the highest degree, and reduce it to a Quintessence, he must proceed thus.

℞ equal parts of this Liquor, and Water or Liquor made out of dissolved Salt, (the manner of which Preparation we shall teach in the chapter of Salts) and put them in a Matrass, which being hermetically sealed and expoled to the Sun during six weeks; thus without any other operation, this saline Liquor will separate all heterogeneous and slimy substances, which did hinder the purity and exaltation of this noble Medicament: but, this time being over, you shall see three several separations, which are the feces of the Liquor of the Plants, the Quintessence of the Plant, which is green and transparent as Emerald, or red and clear as an oriental Granate, according to the quality and quantity of Salt, Sulphur, and Mercury, which shall predominate in the prepared Plant.

I know many will say, that the practise of this operation is easie, and most will hardly believe, that the Liquor of Plants or their Quintessences should possess those vertues, which after *Paracelsus*, we will attribute unto them. I wish nevertheless every one might be, by legitimate and true experiments, as well assured of this truth as I am my self; that Artists might be more industrious, in furthering these rare Preparations, with a confidence, they shall not miss the benefit they may hope from it in their particular, and procure to the general society of mankind, in preserving and repairing health in the individual members thereof.

Of the Use and Vertue of the Liquor of Plants.

THis word Liquor is not here singly to be accepted for juyce, or moisture of the Plant: but it is by excellency here given to this kind of Remedy, because it contains in it self, all the efficacy and vertue which may be in the Plant whence it proceeds;

whence it is not difficult, to make the understanding conceive, to what use these Liquors so prepared, may and ought to be imployed; for, if the Liquor be prepared out of a vulnerary Plant, it may be more safely exhibited then the decoction of any of the Plants of this nature in vulnerary potions; it may also be mingled in injections, used in plaisters, unguents and digestives, which are applyed to wounds or ulcers: but with this condition, that the body of these remedies be composed of Honey, yolk of Eggs, Turpentine, Myrrhe, or any other Balsamick body, which may rather prevent accidents in the wounded parts, then to cause a purging and painful colliquation, ever contrary to the good intention of Nature, and much more of the true precepts of the commendable and learned Chirurgery. In this excellent part of Physick, *Paracelsus* hath chiefly excelled, as, without any gain-saying, it may be proved by those his two excellent Treatises, which he doth entitle *The great and small Chirurgery*. Moreover, if the Liquor be extracted from a Thoracical Plant, it may be mingled in the Julips and Potions, which are to be exhibited to the Patients, affected with any infirmity of the Breast. If it be prepared from a Diuretick or Antiscorbutick Plant, it may be given for obstructions in the Spleen, Mesentery, *Pancreas*, Liver, and other neighbouring parts: or, it may be employed against gravel, retention of Urine, and other diseases of the Reins and Bladder: to conclude, if this Liquor draws its vertue from any Alexiterial, Cordial, Cephalick, Hysterick, Stomachal or Hepatick Plant; it may with very good success be given against Venoms, and all Agues, which may draw their original from venom; if the Plant be alexiterial, it may be given against all Lypothymies, or Swoundings, if the Plant be cordial: and if Cephalick, against Epilepsie, threatnings of Apoplexy, Palsie, and all other diseases and affections of the Brain. If hysterical, it will wonderfully conduce against all Suffocations or Fits of the Mother, raisings, Convulsions, and all other irritations of this dangerous creature, living, as it were, and moving within another. If it be stomachical, it will extreamly conduce to hinder all corruptions which are generated in the bottom of the Ventricle, whether proceeding from the defect of digestion, by reason of the superfluity, or from the vice and evil quality of nutriment;

triment; or occasioned by evil fermentation. Finally, if the Liquor be impregnated with the vertue of an hepatical Plant; if it be true, that the Liver is the receptacle and source of the bloud; it shall be administred in all the diseases which are attributed to the vice and defect of this entrail: but chiefly in growing Dropsies, and their very birth, as even in those which are thought to be confirmed and grown. The *Dosis* of these Liquors, and Tinctures truly Balsamical and friendly to our nature, is from ℈ ß to ʒ i. and ʒ ij. according to the age and strength of those to whom they are prescribed by the skilful Physitian. Let us add nevertheless one advice more, that those which shall prepare these Liquors, may also preserve them long without any alteration or diminution of their strength, vertue or efficacy: which is done by mixing only ʒ iv. of Sugar in Powder, to ℔ i. of Liquor, if it be to be used inwardly, ʒ iv. of Hony boyled with white and despumated Wine, if to be used outwardly in Chirurgical Operations.

Of the Use and Vertue of the ☿. E. of Plants.

THE ☿. E. of Plants may be used in every thing, wherein we have said, that their Liquors were useful. But there is that remarkable difference, that as these noble Remedies are much purer and exalted, then the Liquors which are more corporeal, so must also their *dosis* be very much lessened: so that what was given by dragms, before this high degree of preparation, must be now only given by drops: The *dosis* then is from iij. drops to xx. raising by degrees. This Remedy may be taken in white Wine, Broth, decoction or some kind of Water, which may serve as a vehicle to the Medicine, to render it more active and penetrating by the subtility of its parts, even into the last digestions, to expel the evil, obnoxious, and useless part thereof, restore decayed strength, and finally bring Nature back again into his true path, to direct the health and preservation of every individual subject.

But we will demonstrate, that it is not without reason *Paracelsus* speaks of the Preparation of Quintessences in the Treatise by us above quoted, *De Renovatione & Restauratione*. This

great Philosopher concludes his Treatise by the method of preparing Quintessences of four several sorts, *viz.* Quintessences of Minerals; precious Stones; Plants and Liquors, which are Sulphurs and Bitumens: he hath not been contented with a Theorical Discourse of the possibility of renewing and repairing our internal and external defects; but hath also added the practice and way of operation, upon several matters, to extract the Quintessences thereof, and finally doth conclude, by the manner of using the same to attain renovation of nature. He saith then, that it will suffice, to put as much of this precious liquor in white Wine, as there will be need to colour it with a colour neer that of the remedy; and thereof give a Glass every morning fasting to him, or her which shall feel a deficiency by age, or infirmity of sickness. Moreover, he gives the signs of the beginning and progress of this renewing, and the time when the use of this admirable Medicine must be put by: for, he thought it unnecessary, to mention the signs and observations which are to be heeded, when it is taken for some sensible and apparent disease; since it necessarily follows, that the use thereof must be continued, until the Patient finds alleviation, or the disease falls away, and then must cease consequently the use of the Remedy. But as for the signs of renewing, he delivers them in a judicious order, as if he would prevent the incredulity of those which know not the power nor sphere of activity of the vertue and efficacy which God hath placed in natural Beings, when by the help of Art they are reduced to their universal Principle without loss of their seminal goodness: or to prevent also the astonishment of those which shall make use of it, since what ordinarily happens, in the taking of this Remedy, causes no little surprisal, when the person that uses these Remedies, sees in the first place all his nails fall off from feet and hands, and next all the hair of the body, and then the teeth; and last of all, the skin to shrink and wrinckle, and drying insensibly to fall as all the rest, which are all the signs he gives of internal renovation, by that which is performed outwardly: For, it is as if he would insinuate, and give us to understand, that of all necessity, the medicine must have penetrated through all the body, and repleniſhed it with new vigour, since the external parts

which

which are insensible, and as the excrements of our digestions fall of themselves without any pain: But you must note, that he causes the use of the Remedy to be intermitted, when the last sign, *viz.* the drying of the skin doth appear, the wrinckles and the falling thereof, because it is an universal sign, that the action of renewing hath sufficiently extended it self through the whole habit of the body, which the skin generally covers over, and that so it was necessary, that this old rind should fall, and another grow in the place, because the first was not sufficiently porous, or permeable, to cause the natural heat which is renewed, to drive outwardly all the superfluities of digestions, which are the occasional internal and external causes of most sicknesses in the humane body.

I know this Remedy, and the renewing and restoring vertues which are attributed to it, will pass for ridiculous amongst the vulgar sort of the learned, and even amongst those that pretend to the mysteries of Physick; partly, because Closet Philosophy is not capable to apprehend this great *Arcanum Naturæ*; partly, because they will not, for the most part, be convinced by any proof or experimental demonstration. But I will, to convince them, bring here two remarkable examples; the one drawn from what naturally happens every year, by the renewing of some kind of creatures in one season of the year only; the other from a true History of what happened to one of my best friends, which took Quintessence of Balm Mint to a woman past the age of sixty, which took some also; and finally, to a Hen which did eat Corn steeped in some drops of the same Quintessence.

As for the first example, there is none but knows the renewing of the Stags-head, as also the skin of Serpents and Vipers; without mentioning that of the Bird, called by the *Latines*, *Halcyo*, or the Kings-Fisher, the History of whom *Paracelsus* makes in the Tract before-mentioned. But of all those which agree in the fact, very few do know, or care to know how, and by what means, or for what reason it is done. For first, as for the Serpents in general, it is to be considered, they remain hid under ground, or in the holes of Trees and Rocks, or lodg'd among rubbish and stones, from the end of Autumn, until very far in the Spring, and so during that time, they are as benummed & dead; their skins become thick

and

and hard, and loſes even its poroſity to preſerve the better the Animal whom it incompaſſes; for, if there happened a continual tranſpiration, there would be alſo a deperdition of ſubſtance: now after the Serpents are in the Spring of the year got out of their holes, and have begun to feed, and live upon the tender ends of Herbs, in which is a renewing vertue: this creature being immediately excited by a pricking and ſhooting which ſhe feels about the compaſs of the head, by reaſon of the Spirits heated and actuated by this natural remedy, ſhe rubs and beſtirs herſelf, until ſhe hath got off her old skin from about her head, which ſhe continues to do all the reſt of the day, till ſhe hath caſt away all her old garment; which was not only needleſs, but want of poroſity and tranſpirability might have ſuffocated her. Then doth ſhe appear all glorious, and as it were renewed; which is perceived not only by the difference between the ſlow and lazie motion of thoſe which are not renewed, from thoſe which have caſt their skins, whoſe motion is ſo quick and nimble, that eaſily they ſcape our ſight. And moreover, the skin of the old ones is deformed, and of an earthly colour; whereas the other, to the contrary, is poliſht, fair, ſhining and well coloured. As for the Stags, the caſting of their head is done in another way, and for another reaſon then that of the Serpents: for, that Creature doth not hide it ſelf in the ground; nor renews not all its external parts, ſince he caſts nothing off but his head in the Spring: but the reaſon is his being, during Winter, deprived of ſufficient nouriſhment, and made unable to maintain this wonderful production he bears upon the head, ſince even he wants a due ſupply for his own ſubſiſtence and life; then ſay the Huntſmen, that the Stag (by a Galliciſm) is faln into poverty, which is perceived not only by his leanneſs and weakneſs, but chiefly alſo by the head which becomes dry, ſpongious and deſtituted of ſap, becauſe this Animal hath not a ſufficient vigour, to impart a ſpirituous and ſaline nouriſhment to the head, by reaſon of its want of food, as we have ſaid even now; now, it is this nouriſhment, which gives ſtrength, vigour, and ſuſtenance to the Stags head; for which reaſon, when in the Spring, a good and juicie nouriſhment animates, and heats its body, it cauſes now vegetation in all its parts, and conſequently, and chiefly, in the head, which makes him to caſt it off. We ſhall ſay no more

of

of this renovation, and of the vertue contained in the new Stags-head, and that which is already grown to consistency and perfection, because we have sufficiently made mention thereof in the Chymical preparation of Animals and their parts.

But let us come now to the Experimental proof of Renovation begun by the use of a Quintessence, by the relation of the History we have promised above, and which happened thus. After one of my best friends had prepared a Quintessence of Balm mixt, and that all the tokens and alterations which *Paracelsus* requires, had succeeded according to his hopes, and the truth of the remedy, he could not have a full and true satisfaction in his mind, unless he made the proof of this great *Arcanum*; to be more fully and better perswaded of the verity of the thing, and the delivery of the Authour he had followed: and as he knew that commonly experiments made upon other bodies will be defective, he made it upon himself, and an old woman-servant he had by him, of about 70. years of age, in the same house where he lived; and a Hen bred in the same place. He then for about 15 dayes, took every day fasting, a glass of white Wine coloured with this Remedy; and the very first day, the nails of hands and feet begun to separate themselves from the skin, without any grief or pain, and so continued still casting, until they fell off themselves without help. I confess unto you, that his constancy was not great enough, to go through all his Experiment, and that he thought himself sufficiently convinced by this that happened, without being obliged to try any further conclusions upon his own person. Therefore he gave every morning some of this Wine to this old Woman; who did drink not above 10. or 12. days, and before this time was expired, her monthly courses came back with a laudable colour, and broke out in a considerable quantity, enough to fright her, and make her believe it would be her death; not knowing she had took a remedy capable to renew her to youth; upon which account also, my friend durst not proceed further, as much by reason of the fear which had possessed the old Woman, as by reason of what had happened unto him. Having then thus experimented the Effects of his Medicine, both upon man and woman, he would know also, what operation it might have upon other Creatures; and so keeping

some few grains of Corn in the Wine impregnated with the vertue of the Quintessence he gave them, for the space of eight days to an old Hen by her self; and about the sixt day, she began to cast her feathers by degrees, till at last she remained quite naked; but before the fifteenth came about, she began to recover new feathers, and having got them again, they appeared fairer and better coloured then before; her creſt did rise again, and she began to lay Egges as before. Thus much I had to relate upon this subject, whereof I draw the following consequences.

I believe, there is none of so perverted a reason and depraved intellectuals, which doth not easily conceive, that since Nature teaches us by all her operations, that to maintain life in living bodies, with all the necessary functions of the parts which constitute them, their porosity must be preserved; so must of necessity Art, which is but imitator of Nature, do the same to maintain and restore the health of Individuals, committed to her care and custody. Whence I do infer consequently, that the Physitian and Chymical Artist, ought perpetually to endeavour, by the Anatomy which they make of natural Mixts, to discover that subtile, volatile, penetrating and active part, which is not corrosive, but to the contrary, friendly to our Nature, and may only advance her birth or delivery without constraint: And, as I know that there is nothing but the volatile sulphureous Salts, which may have the power of acting in the manner we have said; so must they apply all their understanding, to separate this amiable and friendly agent, and nevertheless very efficacious, and untye it as it were from the commerce of the gross and material body; if they will be the true imitators of Nature, which ever makes use of this same agent, to conduct all animated bodies to the perfection of their natural predestination, unless she be hindered by some occasional external or internal cause, which ordinarily does interrupt the order, œnonomy, and guidance of her secret motions, which preserves the lovely harmony of all animated compounds. This *Paracelsus* hath done, teaching us the manner how to prepare Liquors and Quintessences: because, this operations separates the subtile part from the gross; preserves &exalts the seminal faculties of the compound, until it hath rendred it capable to correct and amend the defects of natural functions; that imitating the

the example of this great searcher of Nature, and according to the Ideas by us given in this Discourse, before we come to the particulars of the parts of Vegetables, and all the operations to which they are lyable by the processes of Chymistry; all those that shall really addict themselves to these noble operations, may be prevented with a general knowledge of their parts, whether gross or subtile, and conducted also and regulated in their judgement and actions, according to the notions and theorems we have imparted, which they may by the direction of their intentions appropriate to each Vegetable in particular, that so the Artist may satisfie the expectation others have of her, and himself also, to the illustrating and innobling his Profession; and, that which must be his principal end, to the preservation and restoration of his neighbours health.

Second Discourse of Syrups.

WE have sufficiently, in my opinion, insinuated the various nature of Plants, and the difference of their parts, in the fore-going Discourse, to prepare the mind of our Artist, to an acknowledgement of that truth we are now to declare, in that which we now begin, to correct and reform; and, if it be possible, take away the abuse and evil preparation, which the greatest part of Apothecaries do practise, when they work upon Syrups, which are either plain or single, or compounded: and are nothing else, but Sugar or Honey boyled to a certain liquid consistency, either with distilled Waters or Juyces, or with decoctions also of whole Plants, or of their own parts, as leaves, flowers, fruits, seeds and roots. But, as we have taught above, the divers nature of these parts, to be taken notice of by the Artist when he intends to distil them; so do we refer there also the Apothecary, which pretends to Chymistry to be instructed in the way of his operation, when he intends to make his Syrups either single or compounded. Nevertheless, as I know, that all Dispensatories are defective, and commit the same faults in the preparation of their Syrups, and that but one Hermetical Physitian hath attempted to correct them; I think my self obliged to follow the example

of Mr. *Swelfer* Phyſitian to the Emperour, which hath made very learned Notes, upon all the defects of the antient Pharmacy: but as he writes in *Latin*, and doth reaſon as an Hermetical Philoſopher, I have thought my ſelf obliged to direct into the right way, thoſe which either through want of that language, or of skill in Chymiſtry, to apprehend the ſenſe of ſo learned an Authour, do ſtride, and go out of it: Moreover to exhort thoſe, which are endowed with the *Latin* tongue, and have ſome perſwaſion of being skill'd in the Myſteries of Chymiſtry, not to bury their talent, but rather improve it to the advancement and benefit of ſick people, the diſcharge of their conſcience, and particular benefit.

We muſt notwithſtanding ſet down here, ſome few examples of faults committed heretofore in this part of practice, prove the Error, want of a true apprehenſion of the things; and finally teach the way how to do better, adjoyning poſitive reaſons, which may have their foundation in the thing it ſelf and the manner of working, and why that operation proves better, and is more ſucceſsful.

Before we come to the proof to which we have engaged our ſelves, it is neceſſary we ſhould ſhow the ſcope both of ancient and modern Apothecaries in the compoſition of their Syrups, either ſingle or compounded, whereof they have left us the deſcriptions in their Antidotaries and Diſpenſatories. All the true ſons of Art, have from all time held this Maxim; that in all Remedies three conditions were required, *viz.* that they ſhould be capable to operate quickly, ſafely, and pleaſantly, *citò*, *tutò*, *jucundè*: Moreover, another of their endeavours was, that, what they did prepare, might preſerve for ſome time its own vertue within it ſelf, to be uſed when opportunity ſhould offer. Upon this ground have they brought in Sugar and Honey, ſeparated, or both together, in the compoſition of their Syrups, and other Remedies of the like nature. So then have they made uſe of theſe two Subſtances as of two Balſamick Salts, which might be fit to receive and preſerve the vertue of diſtilled waters: as that of Roſe-water in their Syrup, or Alexandrine Julip: that of the Juyces of Plants or Fruits, as that of Wine, Vinegar, Juyce of Quinces, Limons, Oranges, Pomgranats, and many other, in thoſe

those Syrups which they prescribed the Apothecaries shops to be still furnished with: that of the infusions of Woods, Roots, Seeds and Flowers, whereof they have made several prescriptions of Syrups: And finally, that of Decoctions of great store of all these things mixt together, as aromatick Substances, Flowers, mucilaginous Fruits, lacteous Seeds, slimy and jellyed Roots, and those that abound with volatile Salts, whereof they have given us the method to prepare compounded Syrups. But, as the greatest part of those, who have pretended to will, and to be capable to teach Apothecaries, their Art and *modus faciendi*, have been ignorant themselves in the differences or distinguishing of their matter, and want of being vers't in Chymical operations, have not known the several wayes of extracting their vertue without loss; so is it not to be admired, if Apothecaries who have followed them, and every day yet follow them, are fallen into grosser Errors then themselves, since for the most part they perform but very imperfectly what they find in their Books.

Our refuge then must be to Chymical Physick, which shall prescribe us the rules that from henceforth may hinder Physitians and Apothecaries, if they will be guided by them to commit the like faults, and if they benefit themselves by the examples and doctrine which we are about now to prescribe them, whereby methodically to prepare the single and compounded Syrups, without losing any portion of that vertue which resides in volatile sulphureous Salt, and the mixt Salt of Mixts prescribed by their Dispensatories.

We shall begin by plain Syrups, and that by degrees: and first, by those which are compounded of juyces already depurated of themselves, or which may be separated without fear, that fermentation should be obnoxious to them, such as are acid juyces. Then will we treat of such Syrups, as are made with the juyces extracted from Plants, and those of two natures; *viz.* Some destituted of odour, and participating of a vitriolick tartarous tast; the other are odoriferous, and participating of a volatile sulphureous Salt: these two sorts of Juyces need a quick and nimble Eye, and much industry of the Artist in the separation of their impurities, without any loss of their faculties and vertues, before Syrups are made of it; which without the Precepts of Chymistry,

an Apothecary will never be able to perform, then will we end this matter, by demonstrating the faults hitherto committed, in the preparation of Compounded Syrups, whereof we will give some Examples, that all may be made more sensible and manifest, to him that hath a desire to improve his knowledge and skill in his Operation.

The manner of preparing the Syrup called Acetosus Simplex, *or Syrup of Vinegar, after the ancient and vulgar Way.*

℞ ℔ v. of clarified Sugar, ℔ iiij. of Spring-water, and ℔ ij. good White-wine Vinegar, boyl all according to Art, into a Consistency of Syrup.

It seems at first sight that this Prescription is all full of ingenuity, clear, and agreeable to the rules of Art and Nature; but our Chymical examining thereof, will make it appear, that there are more faults therein then words, and that it is all full of absurdities, even unworthy of a Chymical Novice, and so by consequent much more of so famous and renowned an *Arabick* Physician as *Mesue* was, to whom the invention of this Syrup is attributed.

But before we come to note the imperfections of this process, we must declare what vertues *Mesue* and his Sectators have attributed to this Syrup, and the *Oxymel Simplex*, and for which Diseases he destinated it, because it will not give a small light, to discover, how false and ill grounded are the indications which they have taken, want of knowing well the nature of things, and being vers'd in the Operations of Chymistry.

They attribute, and not without some ground and reason, to this Syrup, the faculty and vertue of incising, attenuating, opening and mundifying; that of refrigerating and tempering the heats proceeding from choler, that of resisting to putrefaction and corruptions, and finally of expelling the Urine, and provoking sweat. I confess all these vertues may possibly be in this Syrup, when rightly prepared: but unless it be after our prescriptions declared hereafter, it will possess those eminent and signal vertues.

I have taken the description of this Syrup from the *Augsburg* Dispen-

Dispensatory, as the most correct and exact we have at this day; for had I taken it out of *Banderon*, or some other yet more ancient Author, I could shew in it much greater and less tolerable absurditie, than those I am now to demonstrate. What, I beseech you, is there worse digested, than to prescribe to boyl ℔ v. Sugar, with ℔ iii. water, upon a fire of kindled and flaming Coals, and skimming perpetually to the consumption of half the substance, without a previous Clarification, and then to add iij. or iiij ℔ Vinegar, to reduce the whole into a Syrup, since Vinegar doth also participate of its impurities and froth, and so puts the Artist to a new skimming. This is, notwithstanding, the prescription of *Baudero*.

Others have not sped better with their clarified Sugar, and deserve no less reprehension; for Experience it self doth contradict what they pretend to: For, this Axiom which saith, *Frustra fit per plura quod fieri potest per pauciora, æquè bene vel melius*; shewes evidently, that it is very ill done, to put ℔ iiij. of Water, with the Sugar and Vinegar, to reduce them to Syrup; since, besides that water is here altogether needless, I say even that for two reasons it is absolutely prejudicial: The first, because the ebullition of this Water causes a great loss of time, which a good Artist ought to value; the second, and which is yet much more considerable, is, because the Water doth in the action of boyling too long, carry away in its steem, the most subtle, volatile, and saline parts of the Vinegar, from which proceeds the incisive and aperitive vertue, which is proper and specifical to this Syrup. For, I would fain know, what ℔ iiij. of Water can avail to this Syrup, or what vertue communicate unto the same: For, if it be answered, To advance the depuration of the Sugar, and that it was the intention of *Baudero*: I will ask the reason also, why the *Dispensatory* of *Augsburg*, doth also prescribe the same ℔ iiij. of Water, since it prescribes to take clarified Sugar; which makes me to conclude, that neither the one nor the other had any reason for what they did. Therefore, those that will prepare this Syrup as it should be, with all the vertues and faculties necessary unto the same, to follow and answer the intention of Physitians, must proceed after the following rule.

℞ an earthen white Dish, or Jugg-mettle glased; which place upon

upon a Kettle or Cauldron of boyling water, which we will call a boyling *B. M.* put in this Dish ℔ ij. fine Sugar in powder, upon which pour xviij ℥ distilled Vinegar in a glass Cucurbit rectified in *B. M.* to draw thereof all the waterishness or phlegm, as we shall teach when we come to treat of Vinegar; stirr the Sugar and distilled Vinegar together with a *Spatula* or Glass-spoon, untill all be dissolved and reduced to a Syrup, which shall be of a just consistency, and long-lasting, and possess all the vertues required in the acetous plain Syrup. I leave now the Reader to his free choyce and judgement, of making this Syrup after the ancient or modern way, and I know that the knowing Artist, will ever follow that reason and experience which guides him to operate *citiùs, tutiùs, et jucundiùs*; that is to say, in the quickest, safest and pleasantest manner: to shew that *Chymistry* is, and ever shall be the fairest and best School of *Pharmacy*. To conclude this examination, note in the way, that ℥ ix. of clear Liquor by it self, or according to the prescriptions of Art, are sufficient to reduce ℔ i. to a consistency of Syrup, by a simple dissolution in the heat of the Vaporous Bath; that this may be as a general note, when we come to speak of the other Syrups, either plain or compounded, hereafter.

The general method of making Syrups of Acid things, Fruits, as are those of Juice of Lemmons, Oranges, Cherries, Pomgranates, Barberries, Quinces, Gooseberries, Strawberries, Apples, &c.

WE have not much to note, upon the preparation of these Syrups, because the vulgar Pharmacy doth commit less faults in them; yet as there is some small observations we account necessary to the instructing of our Chymical Apothecary, we would not pass them by.

Take then of all these Fruits which you please, and thereof express the Juyce according to Art, and the nature of each in particular; with this precaution, to make use of no Metallick Vessel to receive them; taking also great care to separate the grains and seeds of these fruits, because some of them are better, and other mucilagineous and slimy; and so would impart an ill taste to the Juyces, or a slimeness and viscosity, which would be

be prejudicial to the perfecting of the Syrup: And as for those Fruits which must be scraped, to express the Juyce thereof, you must have Scrapers of Silver, or Letton well blanched and prepared; for, Iron doth easily communicate its taste and colour, to the substance of any acid Fruit, as also Copper or Letton. All this being exactly observed, let those Juyces, which of themselves are liquid, to depurate, untill they have deposited a sliminess, or a ground of certain Corpuscles, which are to be separated by filtration. But as touching the Juyces of such Fruits, which are of a soft, slow, and viscous substance, they must be put in a cold place to settle, and, as it were, ferment a little, and then the purest Liquor so clarified of it self, and swimming above the rest, let be separated; because if you proceed otherwise, there will rather come a Jelly then a Syrup.

After all these Juyces have duely been prepared in this manner, as we have now deducted, they must be put in a Glass Cucurbit in *B. M.* and evaporated to the consumption of $\frac{1}{3}$ p. or $\frac{1}{4}$. neither ought you to fear, that by this process any portion of the sharpness of the Juyce should be lost, since to the contrary it will encrease it; the acid or sharp quality remaining ever the last, and nothing vapours away but the phlegm, or unnecessary waterishness, and moreover this Operation will serve to separate the remainder of the feculencies abiding in the Juyce: For it is a thing worthy to be noted, that two hours of digestion in *B. M.* will sooner depurate a Juyce, then three dayes of insolation of the same; and, that which is yet more remarkable, the Juyces so depurated will seldom viny, and may be much longer preserved then others, without any alteration: As for the preparation of the Syrup, you must follow the *modus faciendi*, which we have heretofore prescribed to the Acetous Syrup, *viz.* ℞ ℥ ix. of well prepared Juyce, against ℔ j. of powdered Sugar, or the same quantity of Sugar boyled into a solid Electuary or *Rosat* Sugar, dissolve them in the heat of a Vaporous Bath, in Earthen glazed, or Glass Vessels, noting still, when you work upon Acids, never to use Metal.

The manner of preparing Syrups of the Juyces of Plants, as well of those that are deprived of smell, as Odoriferous; with the necessary Notes for their Depuration.

THere are three kinds of Plants which offer themselves here to our consideration, and by consequence three Examples to be propounded, to prepare well the Syrups thereof, with the preservation of their proper and essential vertue, which we will distribute into three Classes. The first shall be of inodorous Juycy Plants, such as are the kinds of Sorrel, Chicory, or Endive, Fumitory, Mercury, Purslane, Borage, Buglos, *Carduus B.* and other of the like nature. The second, shall be of those that are inodoriferous, and sometimes also odoriferous, and whereof the Juyce is filled with a Spirit and Volatile Salt, very subtle, such as are Antiscorbutical Plants, as *Cochlearia*, Cresses, the kinds of Water-parsley, Mustard, Alisander, or Bell-rags, and Water-purslane, which is called also *Beccabunga*, or rather *Beccapunga*. The third, shall be of such Plants as are odoriferous and juycy, such as are Betony, Hyssop, *Scordium*, Smallage, Parsley, Eupatory, and others of the same Category.

How the Juyces and Syrups of Plants of the First Classis *shall be prepared.*

TAke the Plant whereof you intend to extract the Juyce, cut it small, and beat it in a Marble or Stone-mortar, wring and express the Juyce, with all the care and necessary observations, which we have hinted in our discourse above, where we treated of the distilled Waters of the same Plants, and after the Juyce hath been well depurated in *B. M.* and a sufficient quantity of Phlegm or Water hath been extracted, as two parts from three by distillation; then to *lib.* 1. of this Juyce so depurated, mix *lib.* 1. ß. of Sugar, and boyl it together to a Consistency of *Sugar. Rosat.* Which decoct and reduce to a Syrup, with vi. or vii. ℥. of that water you have drawn out of the Juyce by distillation in *B. M.* so shall you have a Syrup endowed with all the vertues of the Plant; and when you will prepare either Apozems or Juleps,

Juleps, you shall mix ℥ i. or ℥ ij. of either of these Syrups, with iij. or iv. ℥ of its proper Water, which according to the vertue and quality of the Plant, you shall fit to the purpose of the disease. *Nota*, that these Juyces so depurated by distillation may be kept one or two years without any corruption, because they are sufficiently filled with the Nitrotartarous Salt of these Plants: but they must nevertheless be covered, or filled up with Oyl, to hinder the penetration of Air, which is the great Alterator of all things; and that they must also be kept in a place, neither too moist, nor too dry.

How the Juyces and Syrups of Plants of the second Classis shall be prepared.

THE Juyces of these Plants must be extracted with the same precautions we have taught, when we spoke of the spirits of Plants, their distilled Waters and their extracts, whereto we refer the Artist, to avoid needless and tedious repetitions. But as I have already often said, that Antiscorbutical Plants were composed of subtle parts, and had in themselves a saline Spirit, which is volatile, mercurial, and sulphureous, which easily vanishes and flyes away: so must the Chymical Apothecary carefully and diligently work in their Preparation after he hath once begun, that by his carelessness he may not lose, what he ought with diligence and study to preserve, and can no more be recovered when once fled away. Here is then the only difference, between the preparation of these Juyces and Syrups, and the fore-going. That when you distil them in *B. M.* you must have a judicious regard, to set a part ℥ v. of the first Water which will ascend out of every pound of Juyce, because these ℥ v. shall have carryed away with themselves the portion of the Spirit and volatile Salt of ℥ i. Juyce: then continue your distillation, until you have drawn away the half of the liquor or moisture of your Juyce; then cease, and to ℔ i. of this Juyce, put ℔ i. ß. of Sugar boyled to a consistency of Sugar Rosat, and reduce it unto Syrup, by a simple dissolution in cold, with vi. or vij. ℥. of the spirituous and subtle Water which first ascended, and hath been kept for this purpose; so shall you have a Syrup filled with all the vertues of its Mixt, as easily it

will appear, and manifestly, by the odour and the taſt: but principally, by all the noble Effects it will produce in all Scorbutical diſeaſes, whether you give it ſingle or mixed, with the ſecond Water you have preſerved. You may alſo preſerve theſe Juyces for ſervice, when there ſhall be need in the time that Plants are out of ſeaſon and vigour, uſing ſuch precaution and fore-caſt as is in ſuch a caſe required.

How the Juyces and Syrups of Plants of the third Claſſis, ſhall be prepared.

WE will not here loſe time with vain and empty repetitions, ſince it ſuffices us to ſay, that the Artiſt muſt duly prepare his Juyce, to ground his operation upon, as we are now going to declare. When you have the Juyce of any of theſe odoriferous Plants, you muſt depurate it by a ſingle and ſlow digeſtion in *B. M.* to ſeparate the feces and skum which ſwims on the top. This Juyce being percolated cold through a Flannel, ℞ ℔ iiij. thereof, and place it in a Cucurbit, with a blind head over it, or in a double veſſel exactly joyned: put in this juyce ℔ i. ß. of the tops and flowers of the ſame Plant, not beaten in the Mortar, but only cut very ſmall with Cizzars; then cloſe the Veſſels, and lute them with a bladder ſteept in beaten whites of Eggs, and place it 24 hours in a ſlow heat of *B. M.* After which take away the covering of the Veſſel, and apply to it a Head-Limbeck to extract out of this Juyce impregnated with the new vertue and efficacy of it Plants ℥ xx. of ſpirituous and very odoriferous water, this ended, ceaſe the fire, and expreſs what remains in the bottom of the Cucurbit, and preſerve it for this following purpoſe: Put the xx ℥ of odoriferous Water in a double Glaſs, or blind Head, to which you ſhall add ℥ x. more, of the new tops of the Plant upon which you work; which lute and cauſe to digeſt in the ſlow heat of *B. M.* during a natural day; then being let cool, expreſs it ſoftly, that it may not grow thick or muddy, and keep it till you have cauſed that which did remain with the grounds of your expreſſion to boyl, and clarified it with white of Eggs, and boyled with ℔ iij. of Sugar, into conſiſtency of Lozenges, which you muſt melt in the cold, or only in luke-warm water, with

with the twenty ounces of your odoriferous Water, containing the Mumial and Balsamical vertue of the Plant; and thus shall you have a Syrup, in which nothing of what should be in shall be wanting, to follow clearly the intention of Art and Nature. But me thinks, I hear the most part of Apothecaries alleadging, that this is a way to lengthen the method of making Syrups, and that no body will care for rewarding the trouble which they will be at, in this exact way of operation: Moreover, that they must be obliged to be at the charge of a *Balneum Maris* and Glass Vessels, which are necessary to digestion and distillation, that these Vessels are brickle; and that, all things thus considered and cast up together, the price of their remedies must then be set at higher rates: and besides this, that others which are not so circumspect, will give their Syrups at the common rates, and that people run most commonly where they find things cheaper, without examining the worth or goodness of them; and that this is the way to ruine their shops quickly, and lose customers. To all these objections, which are not without some ground, we answer, First, as concerning the *Balneum Maris*, it hath no such matter to be started at in it self, but the name, to such as know the nature thereof: for a Kettle only may be made use of to all the purposes and necessary uses of their shops. Secondly, Concerning the Vessels, What Artist is not obliged to be provided with them for other distillations, if they will duly discharge their Calling, or at least make a show thereof? And if they fear breaking, they may have Cucurbits of Jugge-mettle, or white Earth for acid substances, and of Copper tinned for other matters; but this will not be without some inconveniency, in respect that they shall not be able to judge of the depuration of the substances, nor the remaining quantity or consistency, where these things are to be observed, by reason of the opacity of their Vessels. But the last consideration is prevalent over all the rest; and that is, that every one is obliged by the Oath he hath taken in his admission to the Profession of Pharmacy, to exercise it with all care and exactness, and the discharge of his Conscience. This last scope then must prevail over all the rest, and be instead of a spur and bait of well doing: for thereby shall they find the recommendation of Physitians; and their candour and assiduity

being known, will draw upon them the esteem and affections of such as do love the preservation of their present, and restoring of their past health. Let us then go on in discovering some more of the Errors of ancient Pharmacy, and being not contented to prove they have done ill, let us show how they may do better. To this end, we will deliver three examples more, of single Syrups, *viz.* of odoriferous Flowers, of Rinds of the same nature, and of aromatical Substances: That when Apothecaries shall prepare any Syrups of this kind, their shops may not be smelt, at three or four hundred yards distance, which is an infallible token of the deperdition of the Essential vertue of the Volatile and Sulphurous parts of the Flowers, odoriferous Rinds, and aromatical Substances wrought upon: unless these Apothecaries by a vain and prepostrous policy, and very prejudicial to the publique and themselves, take a delight in having their shops smelt from a far off. And as contraries by the opposition of their contraries are more illustrated; we shall first declare, how the fault is committed, secondly, wherefore; to teach in the third place, and explain to the understanding Reader how to do better.

The old process or manner of making Syrup of Orange Flowers.

℞. ℔ ß. of new Flowers of Orange: infuse them in ℔ ij. of clear and clean warm Water, during 24 hours: after which make the expression thereof, then reiterate the same infusion twice, with ℔ ß. of new Flowers at each time; the expression and colature being done, boyl ℥ xx. of this infusion in Syrup with ℔ i. of very white Sugar. *Nota* here once for all, that the weight I understand here, is not the Physitians weight, but the ordinary one of Merchants of ℥ vi. to the ℔. Before we show the deficiency of this prescription, we will relate the vertues attributed to the Syrup proceeding from the same, that we may the better make it plain who is in the wrong, who in the right. It is then attributed to this Syrup, marvellously to recreate the Heart and Brain, to restore Spirits, provoke Sweating; and to be consequently very soveraign against malignant and pestilent diseases, because it drives the infection of this venom from the center of the parts, where it lurketh to the circumference, and makes the spots

spots to appear. All which may be true, if the Syrup be made according to due process. But the Physitian is frustrated of these noble Effects, by the evil and wrong preparation which we have just now quoted; since nothing is left to the Syrup so prepared but an ungrateful bitterness, which proceeds from its material and gross Salt, instead of that pleasant quickness to the taste it ought to have; and that subtile and delicate fleem which is discerned by the Smell: which is properly a token, that this Syrup is not deprived of its volatile sulphureous Salt, in which are placed all the vertues required and hoped from it. But the coction of this Syrup which cannot be performed without boyling, carries away all that subtile vertue which occasions it, not to answer the indications of the learned and experimented Physitian, and much less the hope of the Patient.

The Chymical and genuine Preparation of Orange-Flower Syrup.

℞ ℔. i. ℈. Orange-Flowers, gathered a little after the rising of the Sun, place them in a Glass Cucurbit, and besprinkle with ℥ ij. of good white Wine, and as much excellent Rose-water, cover the Vessel with its head Limbeck, exactly luted in the Joynts, and being placed in *B M.* draw off from it, by distillation made with graduate fire, ℥ viij. of Spirit or spirituous Water, which will be very odoriferous and subtile, which keep by it self: then continue the fire, and draw a second Water, until your Flowers be almost dry, then cease the fire, and boyl your remaining Flowers in ℔ ij. of common Water, to the consumption of ℔ j. Express this decoction filled and impregnated with the extract and fixt Salt of the Flowers, clarifie it with white of Eggs, and boyl it to a consistency of Sugar Rosat with *lib.* j. of Sugar, which you shall dissolve afterwards with ℥ viij. of the spirituous Water, and that in the cold: and you shall have the true Syrup of Orange-Flowers, truly impregnated with all their vertue. The second Water extracted will serve for a Cordial and Alexiterial Water, to mix with the Syrup, when the Physitian shall prescribe it. And this Preparation may serve as a model, to prepare the Syrups of other Flowers, which are, or come nere to the nature of Orange-Flowers. We follow now, to give an example of the

Syrup

Syrup of odoriferous Rinds, and we take for our example that of Limon.

The old way of Preparing Syrup of Limons.

℞ ℔ j. of the outward Rind of new Limons, ʒ ij. of grains of Scarlet or Kermes, and ℔ v. of common Water; boyl all together to the consumption of two p. Strain it, and add ℔ i. of Sugar, which reduce to the just consistency of a Syrup. Which aromatize with iv. grains of Musk. This is their manner of prescribing and operating, altogether unworthy of a true and good Physitian, as we shall make appear by the vertues which they attribute to this Syrup, and by their ingenuous confession, that the good sent is altogether necessary to elevate it, and make it attain to that high degree of vertues which are by them attributed unto it, and are these; to strengthen the Stomack and Heart, to repel and correct putrid and corrupt humors of the Ventricle, to take away ill breath, to resist venomous and pestilential diseases, prevent or remedy the beating and palpitation of the Heart, and dissipate sadness and melancholy. All these vertues are proper and essential to the volatile sulphureous Salt of Limon Rind, as most worthily doth witness its odour and pleasant taste.

But let us see, how these pretended Masters imagine they can introduce and preserve this taste and smell in the Syrup which we speak of, or in a Julep of Sugar and Water, boyled together to a consistency of Syrup. They prescribe to put in the one or the other, a judicious quantity of the external Rind of Limon, without saying, whether it shall be done in cold or warmth; since, if they should even have this foresight, it would be to little purpose: for, if the Rind be put in warmth, the smell and volatile Spirit will immediately vanish away, and there shall remain but an odour and taste of Turpentine; if in cold, the viscosity and clammines of the Syrup, loaded with the bitterness and extract of the Rind, shall not be able to receive, nor be capable to extract that vertue which is pretended to be introduced in it, though very subtile of it self. They had nevertheless done much better, if they had prescribed to the Apothecary, to express with his fingers from the Rind, the oleagineous part hidden in it, and

and impregnate therewith a quantity of Sugar very fine and finely powdered, until it begins to melt, and so to end the dissolution of this Sugar with a little juyce of Limons well filtrated; and thus aromatize their Syrup already boyled with this pleasant and odoriferous Liquor. But this manner of Preparation is not yet worthy an ingenuous Artist or Chymical Apothecary. He shall then proceed herein after the following manner.

The manner of preparing artificially the Syrup of Limon-Rind.

℞ ℔ ß. of the external thin Rind of new Limons; cut it very small with a Knife or Cizzars; and being placed in a Glass Cucurbite, besprinkle it with ℔ i. ß. of good white Wine, or, that which will be much better, in as much Malmesy or good *Spanish* Wine; keep it a while in digestion, and then extract by distillation, with those precautions we have already declared, ℥ x. or ℥ xij. of Spirituous Water, or a very subtile or odoriferous Spirit, without any other addition, if it be for Women, by reason of the Mother, which can neither endure the odour of Musk, nor that of Amber. But if it be for men or women not obnoxious to hysterical passions, put into the nose of the Limbeck you imploy for this distillation, a knot of Silk-cloth, wherein is tyed ℥ ß. of grain of Kermes not too old nor Worm-eaten, viij. grains Ambergriece, and iv. grains of Musk: and so the first vapours which are very subtile, penetrating and dissolving, being condensed in Liquor which shall distil by this Nose, shall carry along with them the tincture, odour and vertue of these three Substances, and so impregnate and perfume all the rest. This done, put ℥ iij. more of Limon Rind, very superficial, thinly pared, and subtile, and very small shred to digest in cold in the spirituous water which you first drew: run without expression this maceration through a Linnen clean and fine, and preserve it in a Vial well stopt, till you have boyled in *lib.* ij. of common Water the Rind which you had left from the distillation, and that of the expression also, until the Liquor be reduced to half, which then strain clarifie, and boyl to a Sugar Rosat, with *lib.* i. of very white Sugar, which afterward you are to decoct in a consistency of Syrup, with the requisite quantity of spirituous essensified Water. This Syrup must

be preserved carefully, because it is as useful in time of health as of sickness: for a spoonful of this Syrup mixt with white Wine, or Sugar and Water, composes a kind of pleasant and odoriferous *Limonado*; and those that will make this drink more acceptable, giving it a sharp pleasant quickness, may joyn to it the juyce of Limon, or some drop of Spirit of Sulphur or of Vitriol, if it be in sickness, and that not without the prescription of a Physitian. From the example of this Syrup, may be drawn the manner of making also that of Orange, nor less useful then the so egoing, and chiefly for women; and those that are subject to Indigestions and Cholicks. We come now to the third example of our Aromatical Substances.

The vulgar Preparation of Syrup of Cinamon.

℞ ℥ ij. ß. of fine and subtile Cinamon. *i. e.* of a penetrating and biting taste, make it into gross Powder, and digest it with *lib.* ij. of good Cinamon Water, by the space of 24 hours in a Glass Cucurbite in a warm place; the Vessel being so well stopt, that nothing may transpire; then strain and express it, and put again ℥ ij. ß. more of new Cinamon in infusion, as long as the first, which keep also; and thus continue and reiterate the same operation four times; keep this infusion impregnated with the vertues of the Cinamon by it self; then take the Cinamon remaining after the expressions, and infuse upon it *lib.* i. of Malmsey, or some other Wine strong and generous; then extract all the Liquor by a strong expression, and joyn it to the preceding infusion, with ℥ ij. of very odoriferous Rose-water, and *lib.* i. of Sugar, and boyl them together in a well covered Pot, to the consistency of a Syrup.

I know there is none so little acquainted with Cinamon and the parts which administer and contain its vertue, as also of other Aromatical Substances, but chiefly, that of Cloves; who doth not admire, and pitty this ridiculous and simple description, of one of the noblest and most excellent Syrups which an Apothecary can prepare or keep his shop furnished with, and which all the Authors of it do destinate to the refreshment and repairing of vital Spirits; to retrive the vital heat, and restore it to the Heart and Stomack, when driven away from it by some mortal cold; correcting

correcting also the ill breath of the Mouth, and the corruption of the Ventricle; to help digestion; and finally, to repair and preserve all the strength of the body. I know, I say, that none never so little versit in the Art of distilling, and extracting the æthereal substance of aromatical bodies, but particularly of Cinamon, cannot, but have an aversion to so defective a prescription, taken from a Dispensatory wherein so many grave Doctors have had a hand. All the vertues attributed to the Syrup of Cinamon are real and true, provided they be preserved: But let us, I beseech you, examine a little, with what fine and judicious precaution, the Authors of this prescription have laboured to do it. They ordain to the Apothecary to boyl this Syrup in an earthen Pot exactly stopped; but consider, that at the same time they prescribe the stopping of the Vessel, they would have the contained matter to be boyled to a consistency of Syrup, which cannot be done, but by the slow evaporation of the superfluous liquor, or by its ebullition. If then the cover of the Pot hath an edge inlaid in the other, and so just and exactly fitted and shut up, and the Joynts so well luted, that nothing can transpire, the Artist or Apothecary shall never attain their end, which is to make a Syrup, according as they are prescribed to do, since there will be a perpetual circulation of vapours from the bottom to the top; for what shall rise from the bottom, shall condense in the top of the cover, and thence fall back again, without any hopes to attain this way to the constency of a Syrup. There must then of necessity be some exspiration, and even some ebullition, to consume ℔ ij. ß of superfluous and super-abounding liquor, whereby to give a body and consistency to the Syrup. Now, would it not be a very great damage, and a considerable loss, to let evaporate and fly away in the Air ℔ ij. ß. and more of a spirituous Water, of a very fragrant smell, very pleasant taste & great efficacy. Yet these erroneous processes and operations can only be corrected by the help of Chymistry, since it is by her means we come to know, that Cinamon possesses in it self, as all other aromatical bodies, a volatile sulphureous Salt, so subtile, that the least heat is capable to extract it and drive it away, if the Artist doth not observe to stop with a great exactness, as he ought to do, not only the joynts of the Limbeck, but also of the nose

wherein it joyns with the mouth of the Recipient, otherwise he shall lose the most subtile and efficacious part of the saline Spirit of the Cinamon, accompanyed with that of the Malmsey, or whatsoever other Wine, the Artist doth make use of.

Let us now prosecute to demonstrate the extreme impertinency of this description, by adding ℥ ij. of good Rose-water upon ℥ x. of Cinamon, and *lib.* ij. of good Water of Cinamon, and *lib.* i. of Malmsey; and that which is yet more ridiculous, is, that the odour of this Water must vanish away with the subtile and volatile part of the other. But it may be objected to this, That Sugar, which is a vegetable Salt, of a median nature between fix and volatile, shall be capable to fix and detain by it self the volatile Salt of Cinamon; and so without reason do we inveigh against this Syrup, since this uniting mean is capable to preserve the vertue of what enters in its composition. But though, this argument seem to be full of strength, and even hath very much in it, we will nevertheless illustrate the truth without destroying the same, and that by the following distinction. We do then distinguish between warm Sugar, and between Sugar cold; for we confess indeed, that Sugar reduced to a subtle Powder, is capable to receive in it self the æthereal Oyls of aromatical Substances, and also all other distilled Oyls, that it is even capable to unite them, and mix them indivisibly with the Spirits and Waters, which is none of the least secrets of Chymistry: But we absolutely deny this union and mixture to be possible in warmth, even in the least heat; and so much less by consequent in that heat which is requisite to the boyling of a Syrup, where it is necessary to evaporate above *lib.* ij. of superfluous liquor. The intention we had to elucidate truth more and more, hath obliged us to deduce this matter so much to the full, and to show evidently the absolute necessity of the intervention of Chymistry, which is the fittest Mistress to teach how truly to operate in all the Preparations of Pharmacy.

The Preparation of Syrup of Cinamon according to the Precepts and Prescriptions of Chymistry.

THis Syrup may serve for a pattern and rule to make all other Syrups of aromatical bodies, of which it would be needless to give the particular prescriptions, since this may be *instar omnium.*

℞ ℥ x. of very good Cinamon cut very small, and put in a Glass Cucurbite, upon which pour ℔ ij. of good Malmsey or *Spanish* Wine, or some other kind of generous and spirited Wine, and ℔ i. of very good Rose-water, cover the Cucurbite with its Glass Body, the joynts being exactly luted, put it in *B. M.* and adaptate thereto a Receiver, which you shall lute to the Nose of the Limbeck very exactly; give first a gentle fire of digestion the space of 12. hours; then increase, till the distilling drops follow close one the other, heeding nevertheless, that the Head of the Limbeck should not grow too hot: but may be so, as the hand may endure it. Continue thus until the Cinamon in the bottom appears dry; then cease, and put by the Cinamon. Reiterate your operation with like quantity of fresh Cinamon, pouring upon it the Water first extracted, and distil as you did at first, reiterate it until the third time; and having ended, put your Water in a Bottle well stopt with waxed Cork, and cover it with a wet Bladder, lest that it should lose and exhale away the best and subtilest part of its vertue. Then take afterwards all the remaining Cinamon, put it in a Cucurbite, and pour upon ℔ iij. of common Water; cover it with its Head; lute, and distil in Sand, and draw off ℔ i. ß. that in case any volatile and virtual substance should remain in the Cinamon, it may be drawn off again without loss: This last Water shall serve in the Laboratory for the last lotion of Magisteries and Precipitates, as also for the extraction of some Tinctures. Strain and express all the liquor impregnated with the extract and fixed Salt of the Cinamon, clarifie, and then boyl to the consistency of Lozenges, with ℔ ij. of refined Sugar, which you must dissolve in cold, with ℔ i. of the spirituous Water before received: This Syrup must immediately be put in a well stopt Bottle, that what you have preserved with so much labour,

ſmay not be loſt. It is a treaſure and preſent remedy in all weakneſ-es: but chiefly, in long and difficult travels of Women, where their ſtrength is exhauſted, and they conſequently deprived of the beſt part of their Spirits and natural heat: and as there is no Vegetable that poſſeſſes more of Spirits then Cinamon, and principally, being animated with the Spirits of Wine, all that vertue is found concentrated in this Syrup by an admirable harmony; ſo, that is capable to produce all the effects we have attributed unto it. The *Doſis* is from one half to one and two ſpoonfuls. They that ſhall deſire to make this Syrup yet more excellent, muſt put in the mouth of the Limbeck ℈ i. of Ambergrice mixt with ʒ i. of true wood of Aloes reduced to Powder, and ſhall diſtil over again ℔ ß. of their beſt Cinamon Water, whereof they ſhall make the Syrup which will be much more efficacious.

We will end this Diſcourſe concerning Syrups, by the notes and obſervations we ſhall make upon compounded Syrups: becauſe that as they are deſtinated to ſeveral ends, ſo are they compounded with different matters, which do require a different manner and way of preparation. But before we enter into our matter, we muſt ſay ſomething that may affect the mind of the Reader, and open his underſtanding, whereby we may alſo inſtruct thoſe that apply themſelves to the ſtudy of the nobleſt Pharmacy. And to begin, I will ſay: that Natural Philoſophers, which are the ſoundeſt Judges of things, do aſſure us, that all whatſoever receives, doth receive according to its proper way of receiving *Secundum modum recipientis*; and not according to the way of the thing received, *Secundum modum recepti*, which is to introduce ſome new quality in the Recipient. If this Philoſophical Axiom is true in it ſelf, as no body of ſound judgement can doubt of it; it will chiefly appear to be ſo, and we will make it evident herein. Becauſe no Apothecary can make a compounded Syrup, without extracting before hand the vertue and tinctures of the ſeveral ingredients which are to be received into the liquor, which is that which commonly Chymiſts do call their *Menſtruum*: Now of whatſoever quality or nature that *Menſtruum* be, it cannot take upon it ſelf, nor be impregnated with the Tincture or Eſſence of any Vegetable, Animal, or Mineral whatſoever,

soever, but according to its own way or capacity of receiving, which cannot be otherwise disposed then by the weight of Nature, which is nothing else but the capacity, and sufficient quantity of the most subtile matter of the extracted body, whereof the *Menstruum* is impregnated: and when it is thus filled and satiated within, either cold or warm, all the power of Art cannot make it to take up more; because, as we have said, he is loaden according to the weight of Nature, which cannot be transgressed, unless with a design to lose all, or frustrate the operation; for,

Est modus in rebus, sunt certi denique fines:
Quos ultra citraque nequit consistere rectum.

For example. Take ℥ iv. of ordinary Salt, dissolve them in ℥ viij. of common Water warm, and you shall see the Water to take up but ℥ iij. of the Salt, and leave behind the fourth, and though you never boyl or agitate so much the Water with the Salt, yet it shall not be capable to receive more; because if it appears dissolved in the heat, it sinks nevertheless afterwards to the bottom, and coagulates when the water is grown cold. But to prove more evidently, that the Water is naturally and sufficiently loaded; take a competent quantity of this Water so impregnated with Salt, that an Egge may swim in it, whereby you may immediately know, whether the Water is loaded according to the weight of Nature; for if it hath as much as it can be capable to receive, the Egge will swim above the Water; but, if it be not sufficiently loaden or impregnated, the Egge will immediately sink to the bottom; because the Water is not sufficiently filled with the dissolved body of the Salt to hinder the sinking of that of the Egge. Another proof and experiment thereof, is made in the boyling of Hydromel or Mead; for, when the Water is not yet sufficiently loaded with the small bodies of Honey, the Egge will never swim above the Water; but to the contrary, will immediately sink to the bottom: but, when by reiterated experiments, you are come to bring the Egge to swim above Water, it is then a true sign of the sufficient boyling of the Mead, and that the Water is as much impregnated with Honey as it can bear,

bear, to have a pleasant and vinous drink thereof, after due fermentation; whereas if it be more loaded, the drink will prove clammy and cleaving to the lips, by reason of the over-abundance of Honey; and if it be not enough, then it is defective, and wants its sufficiency of the body of Honey, to give it the taste and strength it ought to have; because the Spirits of Honey, which cause its goodness, are in too small a quantity to cause due fermentation. We say the same thing of Spirit of Wine, *Aqua-vitæ*, plain and distilled Vinegar, corrosive Spirits of Salt, Nitre, Vitriol, or Copparis, all Strong-waters generally, Liquors or Menstrua's, which are capable to extract or dissolve any Body, Animal, Vegetable, or Mineral. For example, put Coral grossly powdered in a Matrass, and pour upon distilled Vinegar, by degrees, to the height of three or four fingers, you shall immediately perceive its action, and hear a certain noise in its ebullition, which causes the dissolution of the body of Coral; but when this ebullition and noise is ceased, filtrate the liquor which swims above, and put it upon new Coral in Powder, and you shall perceive no more action or noise; which evidently proves that liquor to be satiated with the body received, and uncapable to admit any more; Take also Water, *Aqua-vitæ*, or Spirit of Wine, and put upon Saffron, until it be exhaled to a very high colour; then take afterwards new Saffron, and pour this tincture upon it, and you shall perceive, that this will extract no more, and that your Saffron will remain of the same colour as when you did put it in at first.

It happens so to all Vegetable Bodies entring in the preparation of compounded Syrups, as Herbs, Flowers, Fruits, Seeds and Roots. All these bodies have a Salt in themselves, which though of a different nature, doth notwithstanding load or impregnate of its substance more or less Clammy, the *Menstruum*, which the Apothecary doth use, according to the Dispensatory from whence he hath his direction, proportionally to the weight of Nature; and when this *Menstruum* is once impregnated, with the vertue or essence of any of these things, to the concurrence and proportion of the weight of Nature, it is impossible it should attract to it self the tincture or vertue of other bodies added to it afterwards, without some deperdition and loss: for the nature of

of these bodies will be either fixt or volatile; if fixt, the *Menstruum* is already loaded with something of like nature, and so this body shall never communicate its vertue to the decoction of the Syrup already sufficiently loaded: but, if the vertue of this body be volatile, it will needlesly evaporate during the ebullition of the superfluous liquor in the concocting of the Syrup.

All what we have said here above, may sufficiently show the necessity of delivering our promised notes upon the compounded Syrups, and the examples of the dividing the matters which enter into the composition of these Syrups, to extract their essence and vertue, according to the several nature which is in them, whether it resides in the fixed part, or be found in the volatile.

We shall then make use of the example of six kinds of Syrups, having six several uses, and consequently, compounded of different substances, and extracted with different *Menstruums*, to demonstrate the better the truth of all the possible means. These Syrups are; first, a Stomachal one, which is the compounded Syrup of Wormwood. Secondly, an aperitive Syrup, which is the acetous, or compounded Syrup of Vinegar. The third is, an hysterical Syrup, or good for the Mother, which is the compounded Syrup of Mugwort. The fourth, a cholagogick and hepatical Syrup, which is the compounded Syrup of Endive or Chicory, with Rhubarb. The fifth is, a thoracical or pectoral Syrup, dedicated to the diseases of the Brest, which is that of Hysop. The sixth is, a purgative and phlegmagogical Syrup, which is the Syrup of Carthamie, or Bastard Saffron. We shall first deliver them according to the ancient dispensations, and then shall make our notes thereupon of their imperfection: after which shall follow our prescipition for preparing after the modern way, *i. e.* Chymically and without defects.

The old way of preparing the compounded Syrup of Wormwood.

℞ lb. ß. of *Absynthium Ponticum*, or *Romanum*, ℥ ij. of red Roses, ℥ ij. of Indian Nard. Put it in maceration reduced to a gross Powder, in an earthen Vessel glazed, the space of 24 hours,

with good old Claret Wine, and well depurated Juyce of Quinces, *ana* ℔ ij. ʒ iv. After this, let all boyl and percolate; and thereof with ℔ ij. of Sugar, make a Syrup according to Art.

This Syrup is none of the least in an Apothecaries shop, provided it be well and duly prepared: for it is compounded of such things as may produce those effects attributed unto it by Authors, provided that by a gross and unpardonable ignorance, that which doth constitute its vertue be not lost: such as are the Spirit of the Claret Wine, the volatile, odoriferous, and subtile essence of the Wormwood, Roses, and Indian Nard. But we have already sufficiently said before, the reasons, why this common Preparation was erroneous, when we discoursed concerning plain Syrups; wherefore we will content our selves, only to say, that no body can boyl to a consistency the infusion of this Syrup with *lib.* ij. of Sugar, unless you evaporate first by coction and ebullition *lib.* 5. and more of the superfluous liquor, which cannot be done without the loss of the Spirit of Wine, and the volatile Sulphurous Salt of the ingredients, and so there shall remain only the sharpness of the Juyce of Quinces, and the gross and material extract of the rest. We must then prescribe another Preparation of this Remedy, and the manner of well operating without any loss of the best substance.

How the compounded Syrup of Wormwood must rightly be prepared.

℞ ʒ vi. of new Wormwood, ʒ iij. of Mint, ʒ i. Galanga, ʒ ij. *Calamus aromat.* ʒ i. ß. red-Roses, and ʒ ß. Indian Nard, which shred very small, and put in a Glass Cucurbite with ℔ iiij. of good Claret Wine; put all in *B. M.* with the requisite pre-cautions to the work and distillation, and after 24. hours infusion, extract ʒ xviij. of spirituous and odoriferous water, which put in a double Vessel, or blind Head, and add to it ʒ ij. ß. more of the tops of Wormwood, ʒ ij. of Cloves, and ʒ ß. of Nutmeg, and ʒ ij. of select Mastick, all reduced to subtle Powder; and after two days infusion in a vaporous bath, strain it in the cold, and filtrate the liqour, which you shall keep in a Vial, until you have boyled the remainder of your distillation and expression in a glazed Pot of Earth, to the consumption of half, which clarifie, and boyl afterwards

wards to the consistency of Lozenges, to dissolve again in Syrup with the essentified water of the stomachal vertue of Wormwood and Aromatical Substances. If you will render it more active yet, and ready to answer your indications, add to it Spirit of Vitriol, or of Salt, until it hath acquired a pleasant sharpness, much better then that which might have been left from the Juyce of Quinces, after so long unnecessary an ebullition.

The ancient way of preparing your acetous Syrup, or the compounded Syrup of Vinegar.

℞ Roots of Fennel, Smallage and endive, or Chicory *ana* ℥ iij. of the Seeds of the same *ana* ℥ i. except Endive ℥ ß. boyl all, shred and reduce it to a gross Powder in ℔ x. of Spring-water with a slow fire, to the consumption of one half, then in an Earthen Vessel glazed; reduce it to a Syrup with ℔ iij. of Sugar and ℔ ij. of very strong Vinegar: We have the same reasons to take and note the Errors, whereof was spoken above: For, who cannot (I beseech you) perceive the gross and plain absurdities herein obvious, to boyl Seeds and Roots, compounded of Volatile and subtile parts, with a slow fire, and ℔ x. of water: and moreover, to joyn two pound of Vinegar to ℔ v. of liquor, to destroy the most penetrative and active part of it, and upon whom depends all the incisive and aperitive vertue of this Syrup. Let us not grow tedious nevertheless, in repeating so often the same lesson: but show the way and means how to do better, since we have sufficiently explicated this matter here above in our preceding Notes upon the plain acetous Syrup.

The Chymical Preparation of the compounded acetous Syrup.

℞ Roots of Smallage, Chicory or Endive *ana* ℥ iij. Seeds of Anis, Fennel and Smallage *ana* ℥ i. Endive ℥ ß. beat the Seeds grosly, and shred the Roots very small, then put in a Glass Cucurbite, & pour upon it ℔ ij. of distilled Vinegar well dephlegmated; distil it all in *B. M.* until you have drawn off all the Vinegar, and the substances be dry in the bottom; keep in a Vial the distilled Vinegar, which is impregnated with the volatile Salt of the Roots

and Seeds, which communicate unto it its chief vertue of opening obstructions: draw off the remainder from the Cucurbite, and make it boyl in ℔ iij. of common water, until a third part remains, which clarifie, and boyl to the consistency of Lozenges, with ℔ iij. refined Sugar: to dissolve afterwards in the luke-warm heat of the Bath, to a consistency of Syrup, with the Vinegar you had before drawn off by distillation. This Syrup is excellent for clensing of the Ventricle in pituitous bodies, which for the most part is stuft with slimy and mucilaginous substances, which spread over the internal tunicles, and hinder the digestion of meats and stomack, and are the occasional causes of bastard Feavers: it is also very good to open obstructions of the Reins or Kidneys, Liver, and Spleen, by reason of the subtility of the Tartar volatilized in the distilled Vinegar, assisted with the subtile and penetrating vertue of the Volatile Salt of the Roots and Seeds.

The ancient way of preparing the Syrup of Mugwort.

THE Preparation of this Syrup is ordinarily prescribed as a Master-piece for young Apothecaries to make trial of their skill: I believe nevertheless, more to try their skill and abilities in the knowledge of Plants, than preparing the Syrup with a true preservation of the vertue of its ingredients, which are indeed capable of producing noble effects, since it is composed of Herbs, Roots, Seeds, and aromatical Substances, all concurring to the same end; and all specifical remedies of the Mother, and fit to remove the suppression of Moneths, and cleanse, and as it were sweep the Womb of all the filth wherewith it might be infected, and free it from the pains which winds will sometimes cause in this part, which for the most part irritate it even to Convulsions, Suffocations, and Lipothymies.

But all this shall never be performed, unless, by the help of Chymistry, all the subtile and penetrative vertue, which enters into this Syrup, be duly preserved.

The Description of the said Syrup.

℞ M. ij. Mugwort, after it is over-grown and yet in flower; Penyroyal, Calamint, Origan, Balm-Mint, Dittany of Creet, Persicary,

cary, Savin, Marjerom, Chamædry, St. Johns-wort, Chamæpytis or Ground-Pine, Feverfew with its flower, small Centaury, Rhue, Betony, Bugloss, *ana* M. i. Fennel roots, Knee-holm, Parsley, as *Asparagus*, Smallage, Pimpernel, Woodbind, *Cyperus aromaticus*, Madder, Iris, and Pæony *ana* ℥ i. Juniper-berries, seeds of Lovage-Parsley, Smallage, Anis, Hith, wild Spikenard, Sneesing-wort, or Pepper-wort, Valerian, *Costus amarus*, *Carpo Balsamum*, Crebebs or Cardamom, aromatical *Cassia Lignea*, and *Calamus*, of all *ana* ℥ ß. shred the Herbs and recent Roots, and reduce to gross Powder all the dry substances, and infuse and macerate 24 hours in pure water; then boyl and evaporate to the consumption of the whole half, and removing the Vessel from the fire, when the decoction is grown luke-warm, rub and handle the substances with your hands; and having made an exact straining of all, boyl it to a consistency of Syrup with ℔ iiij. Sugar. *Nota*, That the prescription runs, iteratively, that before the decoction be boyled with Sugar, it may very exactly and cleanly be strained and strained again, or that otherwise the Syrup will gather a Mother, and easily lose its clearness and colour; because they pretend not to clarifie it, lest the white of Eggs should attract all the vertue of the decoction to themselves: and moreover, do ordain to put in the aromatical substances only towards the end of the ebullition, that the vertue of these volatile substances should not deperish by too long a coction. By which it appears, that these men only fail in their operations, for want of having been initiated in the Mysteries of Chymistry, whereby they should have been taught to reason with more judgement, and work with more circumspection. But let us come to the examination of this Preparation, and necessary notes for the instruction of the Chymical Apothecary; and only with three we shall sufficiently give to understand the impertinency of their proceeding: And first of all, To what conduces, I beseech you, that friction, and handling of the species, since they must be pressed, to extract by this violence all the liquor whereof they are imbibed and impregnated? To what purpose again this duplicated and triplicated colature? Since it shall never be able to purifie the decoction, and that it is absolutely necessary to clarifie it with whites of Eggs, to prepare therewith a Syrup, which may be pleasant

to the ſight and taſte. The ſecond ever is, that they will have the aromatical ſubſtances to be put in only towards the latter end of the decoction; leſt, ſay they, their vertue which doth conſiſt in very ſubtile parts ſhould vapour away; not conſidering, that although the decoction might have received ſome vertue from the aromatical ſubſtances, no ebullition of them being previous, yet this vertue muſt vaniſh away, when this ſame decoction ſhall be boyled with Sugar; and ſo their precaution is both unjudicious and ignorant: But as for the third, is it, that nothing elſe but the aromatical ſubſtances are to be heeded in the preparation of this Syrup? Since all the Plants, all the Fruits, all the Roots and all the Seeds which enter into its compoſition are aromatical and odoriferous, and conſequently filled with a Salt Spirit, and Sulphur very ſubtile; which is no leſs to be preſerved then the vertue of the ſaid aromatical ſubſtances, ſince theſe principles only give efficacy and power to the Syrup, to appeaſe, as they pretend, all the irritations and exorbitancies of the Mother. It is not neceſſary, we ſhould deliver a particular method of preparing this Syrup according to Chymical directions, ſince we have enough taught and repeated the manner of doing it, in the others which we have before deſcribed, and chiefly, where we ſpoke of the compounded acetous Syrup: Thoſe that ſhall prepare this Syrup, with thoſe precautions and Chymical method which we have before inſinuated, may boaſt they have made a Maſter-piece of Pharmacy: Since it doth not ſuffice to know the Ingredients, and make thereof a pompous ſhow; to neglect afterwards the preſerving of the vertue of thoſe things which enter into its compoſition, whereof for the moſt part, a great ſhow is made before the Maſter Apothecaries.

The vulgar preparation of the Syrup of Chicory with Rhubarb.

PHyſitians do make uſe of this Syrup for a very ſolid reaſon, ſince it hath its ground and foundation in the nature of the thing, and the experiency of its vertues: for, nothing comes in the compoſition of this Syrup, which may not very well ſecond their good intentions, and produce the good effects by them wiſhed for and deſired; provided it be made with the depurated juyce of

of the Plants which do compose it; which by their bitter taste give a sufficient testimony of the essential Nitro-tartarous Salt abounding in them, which is both aperitive and diuretick; moreover, the aperitive Roots possess in themselves a Salt which is analogous to that of Plants; but, that which doth constitute its chief vertue is the Rhubarb, which is the root of one of the kinds of *Lapathum*, containing in it self a volatile, subtile and very efficacious Salt, a Balsamick and Conservative Sulphur of the faculties of the Stomack: which is proved by its taste and tingent colour, which not only communicates it self to Excrements and Urin when well conditionated, but even carries the penetration of its tincture to the Eyes and the Nails. It would then be a very great damage to lose the vertues of this wonderful root, or to neglect directions, how to extract them right, and preserve them carefully. This Syrup is used against Obstructions, Jaundise, Spleneticall Diseases, Cachexy and impurities in the Entrails, debility of the Ventricle, Epilepsie or Falling-sickness in general; but principally, against that of Children, and finally it is imployed, to expel by Stools and Urins, all what can be vitiated in us; and all this is true enough, because this Syrup must be filled with the essential Salt of Plants, and the volatile Salt of Roots accompanyed with the Balsamick Sulphur of Rhubarb, which do correct all the defects of the Spleen and Stomack, the two parts which cause all the disorders which this Syrup can appease and resettle as is fitting.

The Vulgar manner of this Process is then such.

℞ domestical and wild Endive, *ana* M.ij.ß. Chicory and Dendelion *ana* M.ij Sow-thistle, Hepatick Lettuce, Fumitory and Hops, *ana* M.i. Barley whole ℥ ij. of each kind of the Capillaries *ana* ℥ij. ʒ ij. *Alkakengi*, Liquorish, Ceterach, Doddar *ana* ʒ vi. Fennel Roots, Smalage, Asparagus *ana* ℥ ij. shred the herbs, & roots, & make them boyl in ℔ xxx. water, to the consumption of one half, then boyl this decoction to a Syrup with ℔ x. clarified Sugar, and in boyling add in a knot of clean linnen, ℥ vij. ß. of excellent Rhubarb small shred, and ϑ ij. of Indian Nard; from time to time you must press the knot, and when the Syrup shall be boyled to a sufficient con-

consistency, and put up in its Pot, hang the same knot therein, with your Rhubarb and Spike, the better to entertain its vertue.

This is the common way of making this Syrup: to which vulgar Apothecaries have thought fit to joyn some other Observations to make it the better, which nevertheless, do not much surpass the other: for, though they imagine in them to have somewhat better mended the matter, they go nevertheless to work but blindly, and grope without being able to find out the true way, because they are not guided by the light of Chymistry. They say then, that the Barley must be macerated 24 hours with the Roots and dry Substances of this Composition, in such a quantity of water as is required, and that all the rest may be together boyled to the consumption of the one half. That the decoction must afterwards be percolated, and a part of it taken, wherein for 12 hours together, at least, must be infused ℥ vij. ß. of Spikenard and Rhubarb, to extract the tincture and vertue thereof; after which, they must boyl a little, then softly be expressed, and that this tincture must not be joyned with the remainder, but when the other part of the decoction shall be boyled to a perfect consistency of Syrup, and to put there also the Rhubarb and Indian Nard in a knot of cloth, that they may communicate their vertue to the remainder of the Syrup; because otherwise it would not be perceived, that the suspension of this same knot in the Syrup might contribute to its vertue, and when all shall be put together, then must the Syrup be thickned by degrees, until it comes to a true and requisite consistency. It seems by this, that great care is taken in reformning the preparation of this Syrup: but it is very coorsely; for, Do they not judge, that this decoction is charged with the body of the Roots, and that of the Herbs, and so can take no more? neither extract well the Rhubarb, which is the basis and foundation of the vertue of this remedy? But yet, had they prescribed before to clarifie this decoction, to devest her from the grois body, which the collature cannot take away; they should have shown some spark of judgment, which yet would be defective in this, that it might indeed thus extract better; but would not preserve the volatile part of the Rhubarb, nor the odour of the Spikenard, because before you can make a true Syrup, ℔ x. or ℔ xi. of water

water must first be evaporated away: which cannot be done but by the means we shall now prescribe.

The right Way of preparing Chymically the compounded Syrup of Chicory with Rhubarb.

℞ enough of all juycie Plants which enter into the composition of this Syrup, to make *lib.* viij. of the juyce thereof, shred and bruise them in a stone Mortar, express the juyce, and put it in *B. M.* in a Glass Cucurbite covered with its Head-Limbeck to make a due depuration thereof; keep the water extracted, run the juyce through a Flannel, and put again in *B. M.* and add the Roots mundified and the Capillaries; then draw of *lib.* iiij. of water, which joyn to the first, then put the quantity of Rhubarb and Indian Nard, which you destinate to your Syrup: I do presuppose it to be ʒ ß upon each ounce of Syrup, which is one ounce to each pound, in a Matrass, and pour upon of the water extracted from the juyces three fingers high above the matter, digest it during 12 days in a vaporous Bath to make the extraction thereof; percolate and squeeze softly this first expression, put the Rhubarb again in the Matrass with new water, and so continue till three re-iterated times, and you shall have all the tincture of the Rhubarb, which you shall by settlement purifie in *B. M.* by reason of the expression which ever transmits some gross body and material. This done, decoct the rest of your juyce, after you have strained and clarified it with the Sugar, and reduce it to a consistency of Lozenges, which with your tincture of Rhubarb dissolve in a true Syrup possessed with all the intended vertues, and which without loss of its faculties shall preserve it long, by reason of the great store of the Salts of Plants, and the true Balsamick Sulphur of Rhubarb, *Nota*, that ʒ ß of this Syrup is more efficacious then a whole ounce of that of the vulgar preparation.

The manner of Preparing the compounded Syrup of Hyssop according to the method of the Ancients.

℞ Hyssop not very much dryed, Roots of Smallage, Fennel, Parsley, Liquorish *ana* ʒ x. French-Barley ʒ ß. Gum-Dragan, Seeds

of Mallows and Quinces, *ana* ℥ iij. Capillaries ℥ vi. Jujubes and *Sebestens ana* N. xxx. Raisins of the Sun stoned ℥ i. ß. Figs and Dates something fat, *ana* N. x. decoct all in *lib.* viij. water until half be consumed away; reduce the rest in a consistency of Syrup after you have expressed it with *lib.* ij. Sugar refined.

If in the fore going descriptions of Syrups we have noted some things improper and ill digested; this discovers yet much more the ignorance and supinity of vulgar Pharmacy. For, if we take the pains to examine throughly the ingredients wherewith it is compounded, we find nothing in it but an *abyssus* of mistakes and *Chaos* of Errors; and what I do yet find worst, is, that Chymistry here is at a *non-plus*, not knowing where to have her recourse and repair the defects of this practice: For, the Roots and Herbs yield already from themselves a decoction sufficiently course; the Fruits render it clammy and viscous, but the Gum and Seeds shall render it altogether muscilaginous; So, that it will ever be impossible to take a Syrup therewith; and, if any doth advance himself so much, as to boast that he may effect it——

——*Talem vix reperit unum,*
Millibus è multis hominum consultus Apollo.

For, if he pretends to make his decoction superficially, without well concocting the Roots, Fruits, Seeds, and Gums, he shall frustrate the intention of the Authors and Compilers of this Prescription, and deprive the Syrup of the pretended vertue which is attributed unto it; and, if moreover, he decocts it as it must and ought to be, he shall lose the volatile part of the Roots, and chiefly of the Hyssop and Capillaries; but, if he doth clarifie his decoction, the white of Eggs shall keep the Gums and Muscilagineous Substances. I know, moreover, that the vulgar of Apothecaries who prepare this Syrup, do pretend to have quitted themselves of their duty, when they have boyled the muscilagineous Substances in the decoction in a knot, which they afterwards draw back again without expression, and so is their decoction devested from the required vertue: moreover, what more ridiculous thing can there be, then to substitute the refined Sugar, or in cake, to common Sugar; for, I can satisfie my self with no reason I can imagine,

imagine, unless it be to raise the price of the Syrup, and to abuse the vulgar and ignorant people. As then, this Syrup cannot possibly be well made according to this prescription, no more can it have the vertues which are attributed unto it, *viz.* to contribute to the cure of cold diseases in the Breast; where it is required to cleanse and attenuate the crass and clammy matter which doth obsess it, take away Obstructions, alleviate Hypochondriacal pains, and to be soveraign against the gravel. Now there is no body, that is so little acquainted with the Ingredients of this Syrup, who seeth not it is a manifest absurdity, to hope to open with viscosities and clammy glewing matters, which enter in the composition of this Syrup, to open Obstructions, which they would much sooner be capable to produce, then to remove. Therefore, whosoever requires a good pectoral Syrup, let him make it in the following manner.

Pectoral Syrup of Hyssop very singular.

℞ new Hyssop ℥ iiij. Roots of Smallage, Fennel, Parsley, Liquorish *ana* ℥ ij. shred and beat it grosly, and then put in a Glass Cucurbite, and pour upon ℔ i. Juyce of Hyssop: ℥ xij. Juyce of Fennel, and ℔ ß. Juyce of Ground-Ivy. Distil all in *B. M.* until the grounds look almost dry. Infuse again during the space of a natural day in your water ℥ i ß. fresh Hyssop,, and as much unprepared Squilla: ℥ i. Fennel Roots, as much of the tops of Ground-Ivy: strain, express, and filtrate this infusion, and keep it by it self. After this boyl the matter remaining after distillation and expression in ℔ iv. water to half consumption; again, strain and clarifie, then boyl it, to a consistency of Lozenges with ℔ ij. ß. Sugar, which dissolve in Syrup with the essensified water of the Tincture and Salt of pectoral Plants. So shall you have a Syrup which will be of very great service and use.

The vulgar Way of Preparing the Syrup of Carthamy.

IT seemeth that both ancient and modern Physitians have pretended only to shew their great skill, both in the Theorical and Practical part of Physick, when they have heaped up great

ſtore of needleſs Ingredients for the compoſition of Waters, Electuaries and Opiats; but chiefly, in the deſcriptions which they have left us of their Magiſterial Syrups. That of Carthamy or Baſtard Saffron, the examination whereof we come now to handle, affords us a ſufficient example thereof: For, I know not what Maſter-piece they pretend to have made, in mixing often one with another ſuch kinds of Drugs as are altogether different among themſelves, and contradictory for the moſt part to their purpoſes: the Error of this is only occaſioned by their ignorance in the different nature of Salts, and Spirits, and much more in the action and reaction of the one upon the other; as is dayly ſeen in the laboratories of ſuch as apply themſelves to the Anatomy of natural Bodies, to learn by this way the manner of operating of Nature, and follow it cloſe in the things which Art doth preſcribe us: For, thoſe which have either made formerly, or make dayly Receipts of a foot and a half long, have in truth neither well conceived, nor well known by any experience, that, as Nature is but one and plain, ſo doth it but act plainly; and, ſo of neceſſity muſt the Phyſitians which are but her Agents and Apes, ſtudy to know the plain and ſpecifical vertue of natural products, to uſe them with the ſame plainneſs, that ſo they may become the true imitators of Nature.

Now have they not contented themſelves to make a needleſs rapſody: but, moreover, they have ordained the *modus faciendi* in ſo confuſed a manner, and ſo uncapable to extract the vertue of all theſe different ſpecies mixt together, that it even terrifies and moves to pity Artiſts, and as theſe Syrups are uſed yet in many places, though cut off for the future from the practice of more expert and illuminated Phyſitians: we have thought neceſſary to relate it here, thereby to guide to the true method of well making theſe Syrups, the Apothecaries not knowing and skilled in that myſteries of Chymiſtry.

But, before we go further, let us explain the common way of operating.

℞ therefore this compounded purging Syrup, of true Capillary, Hyſop, Thyme, Origan, Chamædrys or Germander, Chamæpitys or Ground-Ivy, Ceterach or Stone-wort, Bugloſs *ana* M ß. Dodder, Alkekengi, Roots of Angelica, Liquoriſh, Fennel, Aſparagues,

ana

ana ℥ i. Palypody of the oak ℥ i. ß. rind of tamarise ℥ ß. *Annis*, Fennel, Herb-William seeds, Dock seeds, *ana* ℥ i. Carthami seeds slightly beaten ℥ iiij. Raisins of the Sun stoned ℥ ij. Boyl all these substances shred and grosly beaten together in ℔ vi. clear water, which reduce by boyling to a third, percolate this decoction, and put in warm to infusion ℥ i. ß. Senne mundified, and ℥ ß. Agarick in Trochisks ʒ vi. select Rhubarb, and ʒ i. Ginger: leave all to macerate during the space of a whole night, and the next day make a strong expression, then strain, and the straining decoct to a Syrup with ℔ i. refined Sugar, and add of Violat and Rosat, both solutive Syrups, and of acetous plain Syrup *ana* ℥ ij. The use of this Syrup, is by vulgar Apothecaries assigned to the cure of inveterate Feavers, Quotidians and Quartans, to open Obstructions, which proceed from the clamminess and crassness of that humor called *pituita*, and to drive by the Belly the noxious serosities.

I ask now, whether it be possible, that this decoction loaded with the substance of the first matters of this Syrup, and moreover reduced to a third, is capable to receive, much less to extract the vertue of Purgatives: and then, to what purpose, I beseech you, the addition of ℥ ij. of each of these Syrups prescribed, since a quantity of Sugar may be substituted in the place, and in their stead also; infusion of Violets may be added, and of Roses, and something of common Vinegar, or of distilled, as we shall say hereafter. But this is not all; but, besides this, must be considered the most important loss of volatile and sulphureous Salts, Herbs, Roots, and Seeds, which fly away, and evaporate by decoction. Let us then say, how the business may be mended, and let the following Syrup, be a rule and model for all other purging compounded Syrups.

The true Chymical Preparation of the Syrup of Carthamy.

℞ the true Capillary, Hysop, Thyme, Origan, Germander, Ground-Ivy, Spleen-wort, Angelica root, Annis, Fennel, and Herb-William seeds, shred the Plants & Roots, and beat to Powder the Seeds grosly; place all in a Cucurbite in *B. M.* with ℔ ij. water, and ℥ iiij. juyce or infusion of Roses, as much of Violets, and ℥ i. distilled Vinegar, cover the Cucurbit with its Limbeck-head, and draw of ℔ ß. of a spirituous and odoriferous water,

which preserve. Add to this first decoction Bugloss, Dadder, Grains of Alkakengi, Liquorish Roots, Fennel, Asparagus, Polypody of the Oak, Tamarisk rind, Seed of Carthamy, and Raisins mundified, and add lb iij. of water more, boyl all to the consumption of a third or half; percolate and express the remainder of the Ingredients. Clarifie this decoction with whites of Eggs, and infuse in a slow warmth in this clarified decoction the Senne, Agarick in Trochisks, Rhubarb and Ginger, during the space of 24 hours, after which you shall let it boyl a little together, and then percolate; keep the colature by it self, and let boyl once more the Purgative Species in *lib.* i. new common water, to extract all the remaining vertue; percolate and express this last decoction, which joyn to the first extraction of your Purgatives, and clarifie and concoct to the consistency of an Electuary with *lib.* ij. Sugar in Powder. After which, you shall bring your Syrup to a due consistency with the spirituous and aromatical water which you have drawn by distillation. In this manner shall you have a Purgative compounded Syrup, very pleasing, and full of the vertue of all its ingredients, and which for many years will keep without alteration; provided it be kept as all other Syrups, in a moderate place, neither hot nor cold; because from these two qualities, for the most part, proceeds the cause of fermentation, whereby they become sharp and acide, or from gathering of mother and rancknes, which doth corrupt and spoil them.

Thus much had we to say upon the subject of Plants; and these are the notes we thought necessary to observe, for such as wil make good distilled waters and Syrups. What we have said, is sufficient to teach well, not only what is useful to these two Preparations: but may be also with great reason observed and made use of, to prepare all macerations, infusions, decoctions, digestions and ebullitions, of whatsoever the Physitians prescribe to Apothecaries for Apogems, Juleps, Potions, and other Preparations prescribed for the good of the Patient: And I know, that after Apothecaries have known what useful substance may by the action of heat be evaporated, they will study to preserve it the more, to advance in all things the good of their Neighbour, the discharge of their Conscience, and the honour and credit of Pharmacy: and moreover, they will know, that they could not receive these lights from

from any where else, but the Precepts of Chymistry.

Now having thus given a general Idea of Integral Vegetables, and their constitutive parts, of what is fixt in them, and what volatile; and having given the necessary Notes, whereby a Chymical Artist may lose nothing of what he ought to preserve: it is time to come to the part which Nature and Art do furnish us with, in this ample family, and that we give a Section to each of the 14 subalternate Species, which are extracted from the principal Vegetable kind: that the example we shall give of Chymical Operations, which must be performed upon the same species of that subalternate gender, may be as a guide and beacon, whereby the Artist may be directed to operate upon all other species that are of a like nature.

These subalternate kinds, as already we have said, are Roots, Leaves, Flowers, Fruits, Seeds, Rinds, Woods, Grains or Bays, Juyces, Oyls, distilled Sap, Rosins, Gum-Rosins, and other Gums. We will afford a Section to each of these kinds in particular, that if these kinds, though subalternate in themselves, have yet some other subordinated to them, we may nevertheless subdivide them, to give by this means, so much the more light to the Artist, because there is often a variety and difference found between the parts of the same kind, which by consequence require a different Operation. We will begin by the Roots.

Sect. I.

Of Roots.

Roots are the lower parts of Vegetables; and as it were, the shop and place of their first digestion: Now the digestion is, but the volatilization, or spiritualization of an aliment which in some kind was fixt: It seems then, that it was not without some ground of reason, that some have affirmed, that Roots were more fixt then any other part of the Plant, because they are nourished with a less elaborate nourishment then the rest. This indeed seems true, if you have respect to some peculiar kind of

Roots,

Roots, but not generally to all: for, some do possess the vertue of the whole Plant, so, that these are some Plants whereof the sole Root is of use for Physical Preparations, because searchers of Nature have found by experience, that the Salt Sulphur and Mercury of these Plants had its principal heat in the Root, as their taste and odour may witness. And as some Roots are wooddy nervous and knotty; so, there are others that are thin, soft, and spongious; some are mucilaginous and full of jelly, as others are lacteous and full of marrow: some are bitter, some sweet, some sharp and pleasant to the taste; as to the contrary, other sharp, biting, and even corrosive; finally, some are of a pleasant smell, others very unpleasant, and even offending the Brain and Brest, whereas the first do recreate and strengthen it.

The end of our specificating all the differences, is only to give the better to the workman to understand, that he must not use the same way of Operation upon all Roots, before he hath maturely and judiciously examined of what parts they are composed, which is fixt, and which volatile, that after he shall have well conceived their nature, by the help of the external senses, he may conclude upon this knowledge, which way he may proceed in extracting their vertue: And, as we come to examine the particulars of Chymical Operations made upon Vegetables and their parts, we will follow with examples of the manner of working according to the diversity of Roots.

EXAMPLE. I.

Of the Preparation of Odoriferous Roots, which abound in Spirit and Volatile Salt.

WE will take for our first example of these Roots, that of Angelica, brought unto us from foraign parts, which is dry: For, as there is much vertue in this Root, and that it is one of the best Alexiteries: we have chosen it for a rule, upon which may be prepared the Roots of *Calamus Aromaticus*, Carlin-thistle, Lagwort, and Valerian, Pellitory of Spain, and others of the same nature, or in some way approaching, either by the smell or the taste.

℞ then ℔ vi. of Bohemian Angelica Root, well-conditioned, *i. e.* neither too Dry nor Worm-eaten; shred it, and reduce it to gross Powder, which you shall put to digest by slow heat, in a double Glass Vessel or Blind-head, with ℔ xij. of distilled Rain-water, and as much white Wine, during the space of four natural days: After which, put all in a Still-body, and give it fire by degrees, until the Spirits begin to ascend, and to condense and drop: then continue the fire in a well regulated equality, until you have extracted all the spirituous water; which will appear when that which comes off, shall have no more of taste or odour left.

They that shall desire to separate the Spirit from the Water, must make the rectification of it in *B. M.* in a slow heat; and so shall they have a very subtile Spirit impregnated with the volatile Salt of Angelica Root, which is, of a very rare vertue in all Pestilential diseases and fits of the Mother. This Spirit is Diaphoretical, Diuretical, and Alexiterial. The *dosis* is from ℈ ß. to ʒ i. in Wine, Broth, or even in its own Water.

The first Spirit being ascended, encrease the fire, and extract the spirituous water, which shall follow until it comes out without taste or smell; throw away the remainder, because 'tis unprofitable: and preserve this water to mix some of its Spirit with it, or dissolve the extract of the Root from whence it hath been extracted. The *dosis* is from ʒ ß. to ℥ iiij.

Most commonly there swims over the first distillation made *per vesicam*, an Ætherial Oyl which must be separated by the Flannel, or Funnel, and carefully preserved; for it is a very noble Essence, to make thereof a potable and dissoluble Balsom in Liquors, or a Preservative Balsom in time of Plague. But, because it often happens, that this Oyl sinks in the bottom of the Vessel which hath received the water, because the violence of the ebullition hath caused it to take along with it self a portion of the fixt Salt of the Root; it must also be separated with care, for it will not be inferiour in vertue to that which swims above, though it be nevertheless something less subtile, and of less activity.

But let us return to examine that which did remain in the Vessel after distillation, containing in it self the fixed Root of

the Root and a portion of its Sulphur, which never parts from it, by reason of the strict union and tye they have together; this truth is justified by the colour of the remaining liquor and its taste: which would argue a great imprudence, and defect of knowledge and judgement in the Artist, if by his negligency and ignorance he should suffer a deperdition of that substance, which nature and his own senses make not only appear by the outward judgment, but is also really good in its self. Therefore must the Chymical Apothecary acknowledge, that this vertue cannot be concentrated but in that which he calls an Extract, which is to be made after the following method.

Express and strain the whole, then clarifie with whites of Eggs, and let run through the Flannel or the Hypocras Bagge, and evaporate this liquor by a very gentle heat to the consistency of an extract, which may be called between the consistency of a mass of Pills, and a liquid Electuary, that it may be given either in *Bolus* or Pills, when the Physitian shall prescribe; or, that it may be sooner dissolved in some appropriated liquor, according to the intention for which it is used. Now before we determine the *Dosis* of this Extract, we must say, by the way, that all Extracts which are made in this manner, are friendly to the Stomach, and do gently loosen the Belly, without interrupting the œconomy of digestion, and making any superfluous or hurtful colliquation. And let this serve as a general Note for all the extracts which are made out of sulphurous and volatile Vegetables, after the Spirit, Oyl, and Water is drawn from them. The *dosis* of this extract, as of others of the same nature, is from 3 ß. to ℥ ß. either alone or dissolved, and mixt in its own water, or some other analogous liquor, and that to open gently the Patients Belly, without any fear of those perturbations which do use to happen, by reason of the irritation and violence of ordinary Purgatives.

And as nothing is to be lost of what possesses some vertue, you must dry the Cake remaining after expression, and calcine it in an Earthen Vessel, or Crucible not glazed, until the matter be reduced to gray Ashes, whereof make a Lye with distilled Rain-water, which filtrate and evaporate till it be dry, to extract the Salt of the Roots; which afterwards put in a Crucible, and heat

heat it glowing-red upon a fire of Coals without melting; then dissolve it in the last water extracted; filtrate and evaporate it to a skim; and let it shoot into Crystals in the cold; then draw the Salt which shall come pure and clean: and so continue until there be no more Crystallization. You may mix a portion of this Salt in its own water, to render it less susceptible of alteration, you may also put another part in the extract, and it will encrease the stomachal and cathartical vertue thereof. The rest you shall keep, to the end, that if you desire to re-unite all the fixt and volatile vertues of the Root of *Angelica* in one body to make a *Clyssus* thereof (which is that substance properly which contains in it self, as in a *compendium*, all the vertues of a Mixt, the parts whereof have been severed and depurated) you may joyn again the rectified Spirit and ætherial Oyl, by the uniting *medium*, which is the fixt Salt, without which it is impossible to make any union of the Oyl and Spirit, because they are of a different nature, and will swim ever the one on the top of the other: but, when you have alkalized the subtle and rectified Spirit with the proper Alkali of the Plant, then shall you inseparably joyn the Oyl, whereof is produced a marvellous substance: but, as for the *Clyssus*, there is no need of so much refining, mix only one part of fixt purified Salt, with 2 p. of distilled Oyl, and 3 p. of the very subtile Spirit, and digest together in the vapour of a Bath in a circulatory Vessel, until all the substance be indissolubly joyned and united together; which for the most part is performed within the time of a Philosophical Moneth, which is 40 dayes, or that which we commonly call the space of six weeks. This remedy thus prepared, may be given instead of the Spirit, Oyl, Extract and Salt. Having all the Essential faculties of these four togther. The *Dosis* is from vi. grains to ℈ i. in all diseases wherein Physitians do make use of the body of *Angelica* root, whereof it hath been prepared.

How to prepare the Potable and Dissoluble Oyl of the Root of Angelica.

ALthough this Preparation be not very full of mystery, as it will seem to the Reader, yet is it not unworthy his consideration, since it will serve to demonstrate more and more the truth

of what we have asserted heretofore, *viz.* that Salts are but close Spirits, and possess in themselves a hidden Sulphur, and, by consequence, a median nature between aqueous and oleaginous liquors, which cannot coagulate, much less joyn together without the help of Salt, which renders the Oyl dissoluble and capable to be united to the water; and all other liquors of the like nature, which is not one of the less important secrets of Chymistry, though it seems in some manner despicable, by reason of its plainness: but, let no body despise this commendable plainness, since whosoever shall follow her, may boldly boast, that he is the best follower of Nature, whose chief beauty and secret admirable operations are never found in the confusion of things and imperfect mixtures, unless it be to contribute to generation of Monsters. Now, as our study must be, to render things pleasant and easie, and, that those that want these noble remedies, are not still in places to come by Furnaces and Vessels, to unite the fixt Salt to the Oyl of its subject; and moreover, this Salt is for the most part unpleasant, by reason of its lixivi l and urinous taste: I have thought more fitting, to take of Sugar well refined and reduced to very small Powder; or, as they call it, Alkool, whereof you shall fill an Ivory or Silver guilt Box, upon which you shall drop by drop let fall some of the distilled Oyl of *Angelica* Roots, or some other, until the Sugar be sufficiently impregnated, and reduced to a consistency capable to be contained in the Box, although it were turned upside down. So shall you have an admirable Balsom, which by way of precaution, and for a Preservative, you may use in the time of Pestilence; yet, with this precaution, that it be so taken in a less *dosis*, than if you took it for a curative remedy. The *dosis* is from the bigness of a Pea to that of a small Nut. In Wine in the morning fasting, if it be for a Preservative; or in its own Spirit or Water for a curative remedy.

Let no body wonder, that Sugar should cause Oyl to mix well and dissolve in water, for Sugar is a Vegetable Salt, whose nature it is to work, so being mixt of Sulphur and Mercury, whereby it is rendred perceptible of Oyl, whose nature it alters nevertheless so much, that it easily dissolves and unites it self with water, by reason of the saline substance of the said Sugar. These

Balsoms

Balsoms are properly such as you find in modern Authors: under the name of *Elæo-saccharum.*

How the unctuous Balsom of the Oyl of Angelica Root may be prepared.

TO make this Balsom, chuse an incorruptible substance, without either smell or colour, which might be capable to receive the Oyl, and preserve its odour and vertue. Those that have addicted themselves to this operation, have much laboured and took great pains, before they could meet with a substance devested of colour and smell, and that should not turn to corruption in time. For some years, white Wax and Marrow, were two subjects used to this purpose; as also the fat or suet of Kid and of Pork, well prepared and washed: but this lasted very little, these substances becoming ranck, of ill odour, and yellow. To make short, Chymists have exercised their wit further, and refining this process, made use of the Oyl, which by expression is extracted from the Nutmeg, to make therewith the body of their Balsoms; without losing, nevertheless, the subtile æthereal and odoriferous vertue of the Nutmegg, which is thus performed.

℞ ℥ iiij. of very pure Oyl of Nutmegg, and free from any other mixture; put it in a Matrass with a long Neck, or in a double Glass, or blind Head, and pour upon it tartarized Spirit of Wine, to the height of four fingers, then put in *B. M.* and with a gentle heat extract and digest, and when the Spirit shall be sufficiently impregnated with the tincture of the Oyl; draw it off by inclination, and pour other, and re-iterate until it takes no more of the tincture. Then put all what remains in a white Earthen dish, and wash with boyling water, until the whole mass becomes white and inodorous, and this will serve to make the Body of all unctuous Balsoms, which contracts no ill quality, and will easily be impregnated, with the odour and vertue of odoriferous and aromatical Oyls. But, because the eye as well as the smell must be pleased, the green colour is imparted to the Balsoms of Plants, with the juyce of som inodoriferous Herb, wherein the Body of the Balsoms is put to boyl, which you intend to have thus coloured: The Balsoms of Oyls of Roots and aromatical Substances are coloured with yellow Earth, when they come near that colour

in their nature, and those of Flowers, with a little of fine Gum-lack, which the Painters are wont to make use of. Now as this body of Balsoms is dryed, by reason of the extraction of its subtile and unctuous Oyl, made by the help of tartarized Spirit of wine, there is no more to be done further, then to feed it again with a proportionate quantity of the Oyl of *Angelica* Root, or some other aromatical Oyl, to make the unctuous Balsom thereof, with whom the Nostrils and Temple of the Head, as also the back of the hand doth use in time of contagious diseases to be rub'd, to hinder ill smells and savours from invading the Brain, and to correct the malignity of those pestiferous and hurtful Spirits, which fill up the Air in such dangerous times, or, when there is a necessity to converse in places exposed to nauseous smells, or where sick people use to lye. But, before we proceed further, it will not be amiss, to direct the Artist what he is to do with the extraction made by him, out of the Oyl of Nutmegg with Spirit of Wine. This Spirit must he draw off again in *B. M.* to the consistency of a Syrup or boyled Honey and so shall he obtain the extract of Nutmegg impregnated with the best of its corporeal substance; and a Spirit possessed with its Oyl Spirit, and volatile Salt; if you please, you may keep some part of its extraction; for this shall be as a *medium* between the Extract, and Spirit, which hath been drawn off it, and may be made use of to the same purposes, because it possesses the same vertue and efficacy. The vertue of the Extract, Spirit and Tincture, refreshes and delights the Stomack, Brain, and Womb, corrects the ill smell of the breath, dissipates wind, helps digestion, strengthens the *Embrio* in the Womb, is good against Swoundings and beating of the Heart, opens and dissipates Obstructions of the Spleen, stops Lasks and Vomitting. And as I am a witness of the vulnerary vertue of Nutmegg; I think my self obliged for advancing publick good, to relate here, what I have seen done in *Germany*; in the person of a Captain of Horse, filled all over the Body with wounds both of shot and Sword, and who nevertheless, had never felt any touch of Ague in all the time his wounds were about to be cured, not even when the suppuration was working. This will seem, without doubt, very strange and Paradoxical: But, when I have told you, that this Gentleman did ever wear about him Nutmegg,

and

and assoon as he felt himself hurt, did eat a whole one; your admiration will cease, since the Balsamical vertue of Nutmegg, residing in its Oyl and volatile Salt, being driven by the heat of the Stomack in all the parts of the Body, did correct the malignant and dangerous serosity, which is the occasional cause of pains, inflamations, and by consequence, Feavers, and finally, Death, in the greatest part of those which are hurt in some principal part of the body. Chirurgions then must not so lightly fear vulnerary Potions, neither to make use of this Aromat in the Broths of their Patients, by reason of its too great pretended heat: to the contrary, the more expert and skilful they are, and guided by good judgement, they have their recourse to the same, as to a very safe refuge, which will never fail them; but chiefly, if they use externally as wel as internally, the tincture extracted after the manner by us related here above. Let it not be objected to me, that I bring a personal example; since the same hath happened to several of his friends, though they were of a different temper, as they speak, and had been very ill and sick in the cure of several other wounds, because they made no use then of the said Nutmegg.

I hope, this digression will not have proved unpleasant, since it is useful both to the general and private good; but, we will make appear, that Chymistry doth not content it self with the colour of unctuous Balsoms, whereof we have made mention even now, since it hath found the secret to colour the body of Balsoms, with the Magistery of the same Plants wherewith the Balsom is to be made; and it is thus performed.

℞ Rhue or Marjoram, or any other balsamick and odoriferous Plant, as much as you will, when they are yet in the vigour of their green, boyl it in water sufficiently impregnated with the Oyl of Tartar, made *per deliquium*, or plain Tartar dissolved; strain the coction, and pour upon it dissolution of Rock-Allom, made in distilled Rain-water, and the matter will precipitate it self toward the bottom, in the form of a green Pap: Separate the swiming liquor by filtration, then wash the filtrated matter with common water at first, and with the odoriferous distilled water of the Plant it self towards the end, until you have deprived it of all saline taste, which it may have received from the

the Salt of Tartar and Allom: Evaporate afterwards with a gentle heat this Magistery, until it hath acquired the consistency of a very thick Pap, with which you shall tinge the white and inodorous Body of the Nutmegg, which you shall gently dry in the Air, to preserve for the making of your Balsom; or, if you add to it presently, the distilled Oyl of the Plant, then will the Balsom be perfect, and keep its odour, and its colour as long as you can wish. But note, that you must not altogether dry the Magistery of Flowers or Herbs, before you colour the body of the Balsom; otherwise, there would be no union, nor perfect mixtion made, and by consequence, no colouring.

The same operation we have described may be made upon Flower of Roses, Pionie, red Poppy, Iris, Scarlet-grain or Kermes, to make Magisteries thereof, which will be useful to colour the Balsoms of Flowers without any forain mixture.

Before we end this discourse of Balsoms, we will after the learned *Sennertus*, teach the manner how to prepare Balsoms, as to the internal part in another way then with Sugar; which, though they be not so pleasant, yet will have no less, if not more vertue, and will contain, as in a small volume, the efficacy of the Mixt whereof they receive their composition. Take then ℥ i. of the extract of the Plant, of its Root, Flower, or Seed; to which add ʒ ij. of select Manna, mix them together upon a gentle heat; and when the mixture is cooled, add ʒ i. ß. of the distilled Oyl of the Mixt, and so shall you have a Balsom which may be exhibited in *Bolus*, or mixt in Broths, or given in other liquors appropriated to the disease.

EXAMPLE II.

Of the Root of Enula Campana.

THis Root deserves very well we should speak of its Preparation, and make some necessary Observations to instruct thereby the Artist; for, besides, that it hath many vertues, and particular qualities, it will conduce to teach by the same method the Chymical Apothecary, what he is to do according to judgement and experience, in drawing from other Roots, as from this which

which is familiar with us, many good remedies to adorn and furnish his shop with, where Physitians may have their recourse when they need it, for the good of their Patients.

We begin by the chusing of the time wherein this Root is to be taken out of the ground, that it may be abundantly furnished, of what we seek in it, which is a volatile spirituous and sulphureous Salt, manifesting it self by taste and odour. This Root then is to be pulled out of the ground in the beginning of the Spring, when it begins to bud and peep out of the Earth; for, if you delay longer, this vertue which is concentrated in the Root, and is the soul of Vegetation, explicates it self and shoots out, to declare the visible Character of its invisible Idea, given unto it by the Creator of Nature, and so doth exhaust it self from its own seminal vertue, to supply the beauty of perfect Vegetation.

Having got a good quantity of Root thus qualified, and being yet tender and juicie, so that it may be cut in long slices, or round pieces; wash it well, then slit the most likely and most tender Roots in long bits, of the length of the fore-finger and bigness of the small; and cut the other in round pieces of the bigness of a Crown; then put them in a Glass Cucurbite in Sand with a sufficient quantity of clean water, cover it with a Head Limbeck, and fit to the same a Receiver, and exactly lute the Joynts thereof; then give it a gradual fire, & distil it encreasing still the heat, till what in the Vessel begins to boyl, that the Roots may be well boyled. By this Operation many things are performed at once; for, when the Root is so boyled, as to be grown soft to the hand, you may with the remaining decoction in the Cucurbite boyl Sugar to the consistency of a Sugar Rosat, therein to dip the long slices, after they have yeelded their superfluous water upon a Sive turned upside down; and so shall you have a liquid Preserve of *Campana*, which will keep long: if you boyl further the Sugar, and put the Root once again in it, and dry it in a Stove, you shall have a dry and solid Preserve for such as will use it in travelling. Moreover, you may beat the round pieces, after they are strained, and the liquor expressed in a Marble Mortar, and extract the pulp thereof, which preserve with Sugar boyled in Lozenges, and it will be a very good kind of Preserve also for its peculiar uses; but, which,

also will serve as a body, to receive other remedies for the Spleen and Breast, and so you may frame Opiats and Electuaries, which will be very excellent.

But we keep that which is best for the end, which is the spirituous Water and volatile sulphurous Salt, extracted by distillation, during the boyling of the Root, and which should have been lost, had this decoction been made in an open Kettle or Vessel upon an open fire: and would be a great loss, and argue a defect of judgement, knowledge, and experience in the Artist: for, this distilled Water hath the same taste and smell as the Root, and by consequence, doth possess the best part of her vertue, because it is filled with a very excellent and subtile Salt volatile, which ascends into the Head of the Limbeck under the form of Snow, and cleaves to the sides thereof, when heat causes the Water to penetrate into the very center of the Root, and when this Salt is freed from the mucilagineous substance of its body, it is sublimated by the fires activity into the Limbecks Head; it is true, that it doth not remain long there, being immediately dissolved by the aqueous ascending vapours, and carryed along with them into the Recipient, and this Salt doth communicate to the Water its taste, odour, and efficacy. Let those which deny credit to my discourse, proceed in the work as I have just now related, and watch exactly when they shall observe the Limbecks Head to be full of white vapours, and some substance cleave to the sides of it; let them be provided with another equal Limbeck; then taking away the first, substitute a second in its room; and then will they find themselves convicted by their own senses of the truth I have asserted; for, the Spirit of this Salt, shall fill their Nose and Brain immediately with the genuine smell of the *Enula Campana*; and, if they apply a little of the sublimated Salt upon the tongue, they will confess, the very Plant not to have even had so subtile, penetrative, and efficacious a taste; so that it would be an irreparable damage, and a gross ignorance, to lose the principal and more vertual part of the subject which is wrought upon.

Those that will make the Extract of the *Enula*, must dry it a little more then half; then reduce it to a gross Powder, and place it in a double Vessel of the Blind Head with subtile white Wine, to the height of four fingers, which they shall digest and extract in gentle

gentle heat of ashes, until the Wine be impregnated of the taste, smell, and yellowish colour of the Root; then shall they draw again what is impregnated, and put new and fresh Wine until it attracts no more; then must be made an expression of the whole, wch put in a Cucurbite in *B. M.* with the requisite precautions, to draw the Spirit and spirituous Water, until the remaining substance hath neither smell nor taste left; clarifie after this what is left in the bottom of the Vessel, and evaporate in an Earthen dish in ashes until it comes to the consistence of an Extract, which shall possess in it self all the vertue of what is fixed in this Root: which is not despicable, because it opens the Belly and strengthens the Stomack. The *dosis* is from ʒ i. to ʒ ß. and this extract is very efficacious to dissolve and evacuate the fixt, glutinous and tartareous substances lurking in the Ventricle, Spleen, or Breast: but chiefly, it conduces to the cure of Periodical Asthma's, provided you mix some Diaphoretical Antimony, or Volatile Sal of Karabe or yellow Amber, which will not fail to strengthen the Ventricle, and appease the motions and meteorical swellings of the Spleen, which for the most part do oppress the Diaphragma, one of the chief Instruments and Organs of Respiration, and which causes the oppression of the Stomack, and shortness of breath.

This Extract shall be a rule whereby to prepare those of Valerian Roots, Pellitory of Spain, Carline-thistle, and chiefly Contrayerval, which is a Root coming from *Peru*, and one of the most Soverain remedies against Poyson: but chiefly, in all Pestilential and Malignant Diseases, as Camp and Purpled Feavers, Measels and Small Pox, because it rids potently away the venom of it, and expels dangerous serosities by Sweat and Urin. It is marvellous also in corruptions of the Stomack, and chiefly Worms. There are even some, which believe, that its use is capable to dissipate the charm and poyson of Philters, or amorous Potions. The *Dosis* of the Root in Powder is from ℈ ß. to ʒ i. in Wine or Cordial, or Sudorifick Waters, as that of *Regina Prati*, *Carduus Benedictus*, or Mead Sweet, and Sassefras. But the extract of it made by exact operation, and the Spirit drawn by distillation, are without compare much better then the material Body of the Root, and their *Dosis* less by half. I could not refrain from speaking something in my way concerning this noble Root, knowing that

it is yet concealed to most of the French Apothecaries: and I make no question, but that those which by the order of Physitians shall make use of it, will find those effects to answer the vertues I have attributed unto the same.

Of the Root of Consolida Major, *or Great Comfrey and Satyrion.*

After I have spoken of Odoriferous and Aromatical Roots, which are of a high taste and full of sensible volatile Salt: we must speak afterwards of Mucilagineous and almost Insipid Roots; but, though they seem so to be tasteless, yet do they in sufficient abundance partake of much vertue; provided the Artist may free and untye them of the clammines and viscosity of their substance, to bring to light the Salt and Spirit in them contained, the quickness and efficacy whereof are as it were imprisoned and fettered by the ligaments of this clammy and agglutinating substance, which hinders them to produce within us, those noble effects which they are capable to produce, and which they conceal in their own center. But to perform this, there is no way but by Chymical operation, which discovers the hidden vertues, and manifests the mystery contained in each Mixt. We will begin with the preparation of the Great *Consolida*, or Comfrey, which though viscous and insipid, produces notwithstanding very rare effects outwardly and inwardly applyed; for it is of a miraculous vertue, to dissolve all contusions, strengthen the sinewous parts of the Joynts in all sort of luxations. But it is much more efficacious in plaisters, with Powder of the Stone, called *Ostæcolla*, both to hinder the accidents of fractures, as to generate the *callus*, necessary in the re-uniting of broken Bones. And, if this Root doth produce so remarkable effects for the external parts; it is no less wonderful to stop the spitting of Bloud, whether occasioned by the rupture of some Vein, or proceeding from the erosion of the Vessels, which ordinarily happens in the Brest or Throat: Moreover, the use of it doth continue the healing of the several kinds of Hernia's: Provided at the same time the part affected be kept tyed up with a good fillet, and every third day a Plaister or *Cataplasma* of the same Root be applyed, with *Croceus martis* astringent, and dulcified Earth of Vitriol. This we have only mentioned, to let the Reader know, that this Root

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is full of a wonderful vertue, if so be the Chymical Apothecary is capable to digest and extract it according to Art, separating the hurtful heterogeneities, which hinder this so considerable hidden vertue from being reduced into act, to bring to light the mystery of Nature, which every individual substance deeply hides in its center. And to attain thereunto, he must proceed in this following manner.

The manner of making the Extract or Blood of the Roots of Great Comfrey and of Satyrion.

ALthough this extract or blood may be made with the Root only of the Great Comfrey, and would so contain much vertue: I find notwithstanding very necessary, to joyn unto it the Roots, Leaves & Flowers of Sarracene Comfrey, and those of Bugle or middle Comfrey; also of *Prunella*, or of small Comfrey and Seeds of St. Johns-wort; because the balsamick Salt of the Leaves, and the embryonated Sulphur of the Flowers, and Seeds, will infallibly contribute to the perfection of that remedy which we are about to describe.

℞ ℔ ij. Roots of the Great Comfrey, and as much of the Roots, Herbs, and Flowers of the three other kinds; cleanse and pick, and then wash them well; and having beaten them in a Marble Mortar, with a Woodden Pestle, until all be reduced to a mash, add ℔ ß. Seeds of St. Johns-wort, reduced likewise to a Pap, by beating in the Mortar and sprinkling it with good white Wine; add to the whole, ℔ i. of crumb of Rye-bread, and as much of Wheaten-bread; mix all together very well, then imbibe it again something more with a little of good white Wine, until it be converted to a kind of thick mash or papp, something clear: which put in a Matrass with a long Neck, stopped with another Matrass, whose Neck shall be inserted in the other, the length of four inches; lute the Joynts very exactly, with beaten whites of Eggs, Linnen, Bladder and quick Lime, as we have taught above, where we have treated of Lutation: Suspend the Vessel on a vaporous Bath, or put in the heat of Horse-dung to digest, or in some other analogous heat, and give it a slow and digestive heat, until the matter be changed into a kind of chyle, red and as high coloured as blood. Then let the Furnaces cool again; take away the Vessels,

and run through new and clean Linnen the matter which you must strongly express and strain. This expressed substance thus red and coloured, put in a vaporous Bath, to make a second digestion thereof, and a more exact purification; for, the liquor will much better clarifie, and the feces and remaining impurities, will make a sediment in the bottom of the Vessel, which must be separated by a gentle inclination, until the liquor be clear, red, and transparent, so that no more impurities appear in the bottom. Put then this liquor so depurated in a Cucurbite, in the vaporous Bath or *B. M.* and draw off by distillation about the two third parts, and in the bottom will remain the true balsamick extract of those vulnerary Roots, which properly enough are called the Bloud of the Great Comfrey: Of wonderful vertue against all the kinds of Rupture, being ordered with the intimated pre-cautions; it is also a most rare and excellent help to consolidate inward ulcers, but chiefly, those of the Breast: and also very good, being mingled in vulnerary Infections; as also to dip in the Linnen or Tents, applyed to the Orifice or Lips of Wounds. The *dosis* is from ℈ ß. to ʒ i. in the water drawn off by distillation, white Wine, or any other convenient liquor, such as are vulnerary Potions; but, you must continue for several dayes every day fasting; and even in inveterate diseases, it must be used during the space of a Philosophical Moneth, which is 40 dayes.

This method of Preparation must be exactly followed, to make the extract or bloud of Satyrion Roots: except only, that no other ingredient is to be added in the composition of it, but, that of Bread and Wine, with ʒ i. of very good Ambergrice, to each pound of the matter which is to be digested. The *dosis* is likewise the same with the former extract, both good to strengthen the Womb, and render fruitful and apt for generation. It is also a very secure specifick to put and restore again to their own temper all the parts designed to copulation, and the dependances of it. Those that to each pound of Satyrion Root, before they be put in digestion with the Bread and Wine, will add ʒ i. ß. of Vipers flesh dryed in *B. M.* will render this remedy much more efficacious. And note, that these Roots must be taken up in the beginning of the Spring, and that you must only take that cod or swelling part which is smooth and full, and reject that which is

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rugged and soft, the signature of this Root doth evidently testifie, that Nature hath furnished it with necessary vertues for the use of those parts whose figure it represents.

Of the Root of Female Fern.

THough this Root be very common, yet is it not made use of enough, considering the great vertues it doth possess. Now that which hindereth, for the most part, Physitians, from making legitimate Observations, of the particular and specifical vertue of things, is, that for the most part, they confound them one with the other, which is the cause they cannot properly determinate, to which of the Ingredients they are to attribute the effects of those remedies which they have prescribed. But Chymical Philosophers proceed otherwise, and, as they know Nature to be but one and uncompounded, so will they follow this good Mother and Guide as neer as it lyeth in their power. And as by the senses they have discovered, that the Root of Female Fern hath in it self some coagulated viscosity, which testifies it to have much of a volatile sulphureous Salt, of a rare and noble vertue, easily discerned by its bitterness mixt with an astringency, but this vertue to be hidden under the shade of the body; so have they found it necessary to free it from its prison, by the means and help of Fermentation in the following manner.

℞ XL. or L. ℔. of this Root gathered in the beginning of the Spring, and then when it begins only to bud out in a small yellow shoot from the ground, that it may not have lost yet any part of its internal substance by vegetation; wash and cleanse it from all the Earth which cleaves to it, & separate it from all other superfluities; without taking away, nevertheless, that which already is budded out: shred it, and then beat it well in a Marble or Stone-Mortar, then put it in a Fat of the bigness of about xv. or xx Buckets, and pour upon it xij. Buckets of warm Water: of a degree, as it were, to scald Chickens; and having well agitated the same, put two Buckets full thereof to ferment with Yest, or ordinary Bread leaven, and a little Rye Flower: and when the liquor begins to stir or raise in boyling in the Buckets, pour it in the Cask, provided, the liquor also contained in it, be of a moderate heat, so, as without

without inconveniency the hand may be suffered in it; cover the Vessel, and let the ferment or leaven perform its action, after you have stirred all very well together; after which, distil the fermented liquor in a Still Body *S. A.* two dayes after fermentation is ceased. All being thus distilled, and your distillation continued until the matter yield no more of spirituous and saline taste; put again all what hath been distilled in a Stillatory Vessel, and rectifie the Spirit, laying a side that which comes first, as the most efficacious and penetrative; and so the second and third, until it yields nothing more, but an inodorous and insipid Phlegm. This Spirit is a great opener and disopilator, dedicated in general, to open the Obstructions of the Intrals; but specially, those of the Spleen and Matrix. The *dosis* is from ℥ ß to ʒ ij. and even to ℥ ß. in the last Water drawn off by rectification, or in Broths or white Wine. And the fermentation and distillation of this Root, must serve as a pattern for all other Roots, either of the same nature, or coming neer it.

Of the Roots of Jalap and Mechoacan.

AS we have propounded to our selves to afford examples of Roots that are different in their nature: we have thought fitting to take that of Jalap and of Mechoacan, because they are two purging Roots, both equally expelling serosities, and yet differing among themselves; for, the one is of a resinous quality, which is Jalap; and the other mucilaginous, mixt with rosin and a saline and insipid substance; in which, partly, is placed its purging faculty, provided, it be well extracted, and such is Mechoacan: for which cause, the Artist is obliged to use divers wayes of Preparations, and different *Menstruums* to extract the vertues of these Roots, that they may be exhibited in a less *dosis*, and cause them work with less violence.

To prepare the Magistery or Rosin of Jalap.

THE Root of Jalap was first brought unto us from the *India's*, and is more or less full of vertue, according as it is more or less resinous, which Rosin is nothing else but a sulphureous volatile

latile substance, more concocted and exalted then the volatile Salt, ordinarily found in other Roots, and as it is in this resinous and fat part of the Simple that the Purgative vertue is placed, and that nothing but the ætherial, volatile and sulphureous Spirits, are capable to extract and dissolve this Rosin; Chymical Artists do commonly use the rectified Spirit of Wine to make this Extraction, which is thus performed.

℞ lb i. of well chosen Jalap Root, *viz.* full of round blackish circles from distance to distance, till they meet in the center, close and well compacted, and shining inwardly when it is broken; reduce it to subtile Powder with a Sive, and having placed it in a Matrass, pour upon it Spirit of Wine well rectified and dephlegmated; digest it some dayes in Embers, and when the *Menstruum* is sufficiently coloured, draw it off by inclination of the Vessel, and filtrate it, and continue this extraction until the Spirit of Wine tinges no more. Put all your tinctures filtrated in a Cucurbite, and draw off by distillation in *B. M.* the 3 parts of the Spirit, which will be useful yet for the like operation again; after this, draw your Cucurbite from the *Balneum*, and affuse upon the remaining liquor, about a pint of very clear water, which will precipitate the Jallap Root to the bottom of the Vessel: because the Water weakning the Spirit of Wine which held the dissolved Rosin, and kept it flowing, causes it to lose its cold, and there being not strength and nimbleness enough in the Spirit to keep the solution, makes it precipitate and fall towards the bottom. Put again your Cucurbite in *Balneo*, and draw off the remaining Spirit of Wine mixt with the Water, and that for two reasons; the first, That you may not lose that portion of Spirit of Wine, which is still of use; and the second, because by that means you make yet as a second precipitation of Rosin, the Spirit of Wine holding yet some portion in it self, as it does evidently appear by the milky whiteness of the Water. Take the Rosin from the Cucurbite and put it in an Earthen Platter, and wash it three times with pure Water, to take away the tang of the Spirit of Wine, which every one is not equally pleased with; but you must wash it the fourth time with Rose-water and Cinamon mixt together; then dry it gently in embers, and keep it for your use. The *dosis* of this Rosin is from iij. grains to xv. in *Bolus*, Conserve, or Jelly of Quinces

and Gooſe-berries; it may be grinded alſo upon a Marble-Stone with three times as much of *Cremor Tartari*, until the whole be reduced to an impalpable Powder; then diſſolve a *doſis* thereof in Water or Broth: but you muſt be very cautious, when you adminiſter any of this Roſen, or of the others that are alike, and chiefly thoſe that are of a purging faculty; becauſe, that as their ſubſtance is not eaſily diſſolved in aqueous liquors, but contrary-wiſe, does re-incorporate when you think it to be more exactly mixt; and moreover, that the Stomack is fill'd moſt commonly with ſome moiſtneſs, you may have good reaſon to fear, leſt this Roſen ſhould unite again, and cleave to the ſides of the Ventricle, in the paſſage of the Maw-gut, or in the *Duodenum*, which is for the moſt part the cauſe of after-purges, not properly to be imputed as an ill effect of the remedy, but to an accidental cauſe occaſioned by unskilfulneſs in adminiſtring the ſame; for, when theſe Medicaments are well diſſolved, and joyned and allyed to the aqueous liquor, by the means of ſome neutral body all fear is over. You muſt then make uſe of yolk of Eggs to dilute and diſſolve purging Roſens, that they may the better incorporate and allay either with the Priſan or Broth wherein they are exhibited to the Patient: for, the reaſon of fearing theſe kinds of remedies never proceeded but from accidental cauſes; they, in themſelves, and their operation, being in no wiſe dangerous, unleſs, when they are ill diſſolved and united with the aqueous liquor: But, we thought very neceſſary to give this Advertiſement in the way, by reaſon of thoſe ill accidents which dayly do happen thereby.

To make the true Extract of Mechoacan.

℞ ℔ i. Mechoacan well choſen, not cariated or rotten, neither mixt with Briony-Root, which will eaſily be known and diſcovered by the ſight and taſte. By the ſight, becauſe Mechoacan Root hath circles from the center to the circumference, which that of Briony hath not; and moreover, the taſte doth yet better diſcover the truth, becauſe, that of Mechoacan hath only a farinaceous and inſipid taſte: but, that of Briony pricks the tongue and throat, when long kept in the mouth: you muſt then take the whiteſt

whitest Mechoacan, and that which easily breaks without making any dust, by which the corruption and cariation is discovered. Put this Root thus well chosen, into very subtile Powder, and having placed it in a Cucurbite of Glass, pour upon it Spirit of Wine, not rectified, to the height of four fingers and more; cover the Cucurbite, with a Blind Head, and the Joynts being well luted, digest the whole in heat of embers, until the *Menstruum* be sufficiently coloured, which draw off by inclination, and re-affund new Spirit, re-iterating so long, that your *Menstruum* will tinge no more; squeeze the Root hard, and filtrate all the Extractions, and distil in *B. M.* to draw off again the Spirit of Wine used for a *Menstruum*, until it be altogether insipid; then cease the fire and take the rosenous substance which will swim above what is left in the Vessel, and dry it in a small Platter with a slow fire in Sand: Put the liquor wherein the Rosen was contained in a leaded Earthen Pan, adding ℥ i. of Salt of Tartar; and therein put also the Cakes left after expression, which let boyl together to half-consumption; clarifie this decoction with whites of Eggs, and run through the cloth, evaporate it softly in Sand, to the consistency of a liquid Extract; to which add the Rosen reduced to very subtile Powder, with three or four peel'd Almonds, and ℥ ij. Sugar, and so keep this Extract for use whensoever there is occasion, or to administer it in Pills. You must note in your way, that it is not without reason, I have prescribed the addition of Almonds and Sugar, when the Rosen shall be triturated. For, you must not think it only done, to hinder the sticking of it to the Mortar or Porphyry, as it serves also for that purpose: But it is moreover, that these two Substances may be as uniting *mediums* to joyn closely the Rosen with its Extract, and to facilitate also the dissolution thereof in aqueous liquors. This Extract is of singular efficacy to evacuate superfluous serosities from all the parts of the body, and less active and violent then the Rosen of Jalap, which is used to the same ends as this remedy. It is above all, a Specifical to purge the head, the nervous parts, and the breast; and therefore is very seasonably used in all Catharrous affections, Dropsies, and all Arthritical pains, but more particularly in Venerous diseases. The *dosis* is from vi. grains to xxx, either in Pills, or dissolved.

Of the Roots used for the Extraction of Fecula's.

WE cannot enough admire the long practised abuse, even by the wisest and most experimented Physitians, concerning Fecula's; and I wonder, that those which so often have advowed, confessed and taught, that all the vertue of Substances resides only in their Salts, but chiefly, of Vegetables: I wonder, I say, that these Chymical Physitians, should have made use of Fecula's, and attributed unto them the vertue of opening, dissolving, and penetreating even into the utmost digestions. And to prove the true ground of my wonder, you must know, that the Fecula's are nothing else, but the farinaceous and insipid part of the Root; and, to speak properly, as the white Starch of it: Now there is no body scarse, but knows, that a small quantity of the same will coagulate a great deal of water, and so consequently, must have the same operation in the Stomack, when the Fecula's are introduced in it, and the natural heat begins to act upon, as the least heat doth upon white Starch. But to discover the better this mistake, I will deliver the most exact and artificial way of preparing Fecula's, to show even to the meanest apprehension, that I have asserted nothing against truth; and that I condemn this common abuse, grounded only upon reason and good experience.

The manner of preparing Fecula's.

FEcula's are commonly made out of five kinds of Roots chiefly, which are *Arum*, or Coockow-pint, *Iris*, Piony, Briony, and great Dragons. But it will suffice, to give an example of any of the five, which will be as a model for the rest, and all those that are of a like nature. First of all, the time wherein the Root must be gathered, is to be attended, when you will make the Fecula, and that is, when the Plant begins only to put out the least bud, otherwise, no good could be done upon it. ℞ then Briony Root at such a time, and wash it exactly; then scrape the out-side of the Root, and so get the substance by scraping very cleanly; then express hard the same, and let settle in the bottom of the Vessel a kind of white feculency, until the juyce be all cleared, which draw

draw off softly by pouring down; and as you will find a mucilagineous and yellowish substance, above the whitish Flower which settles in the bottom; you must pour upon it a little of lukewarm clear water, to make the separation thereof, by a slow and circulary agitation; that being ended, you must put this farinaceous Substance or white Starch in a Marble Mortar, and agitate the same with clear water, until it be as white as Milk, then percolate this white Water through a new Tamy somewhat close, that the grosser part may remain within; then cover the Platter, and suffer the Fecula to make a settlement, re-iterating this agitation with new Water three or four times, after which, you must separate the Water by a soft and slow inclination; then cover the Platter with a white Paper, bored through with many small holes of a Needle; then expose it to the Sun, until the Fecula be dry, which will be as white as any Starch, if you proceed in the operation with exactness and cleanliness.

This is the manner of artificially preparing your Fecula's: but, it were to be wisht, that they were endowed with the rare vertues attributed unto them; for, there is no judicious man, never so little initiated in the mysteries of Chymistry, who doth not conceive, that this earthly and feculent portion, which by its own weight is severed from the juyce, is rather an excrement of the Root, than a substance containing its vertue; for, it is not with the family of Vegetables as with that of Minerals and Metals: Since Vegetables have only their vertue contained in a saline and volatile substance, whereas the Metals and Minerals are fixt in a manner; and, that in this fixt substance and their material and close center, is placed their chief vertue. Now this saline substance is, without doubt, in the juyce of the Plant; since it is a proper quality of Salts to dissolve themselves in Water, and if any part of it should remain amongst the Fecula's, the washings which are to be used with single pure Water to purifie them, carry away, without any doubt, the remainder of their vertue; so, that there is nothing left but a subtile Earth, or a mere white Starch or Flower: It would then be much better, to use those Roots, whereof the Fecula's are extracted, after they have been dryed, either whole, or cut in round slices; for, then may the Artist be confident, that their saline and mucilagineous vertue is

concentrated in their own body by exsiccation, and, that nothing but the aqueous phlegmatick and unnecessary substance is vapoured away. I dare moreover affirm, that what is commonly thrown away after the expression of these Roots, is without compare, worth much more, then the feculas from them extracted. It is much better to strain the juyce and depurate it, and then evaporate it in *B. M.* to a consistency of inspissated juyce or extract, to make use thereof in case of need, since it will be endowed with the vertue of the Root, and will not fail to produce the hoped for effects: with this I shall put an end to the exemplification of Roots, to come to the other parts of Plants, according to their Order.

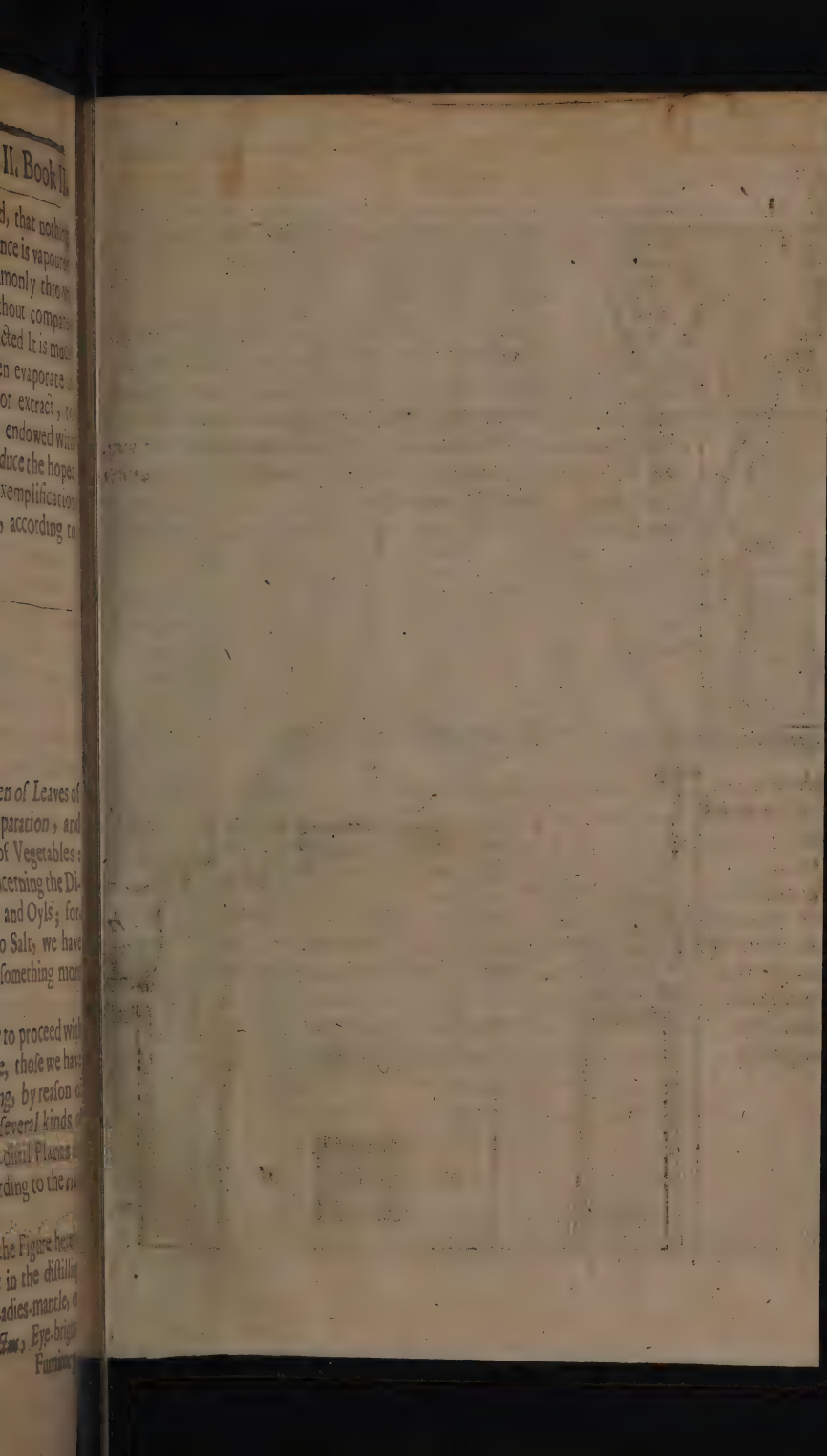
Sect. II.

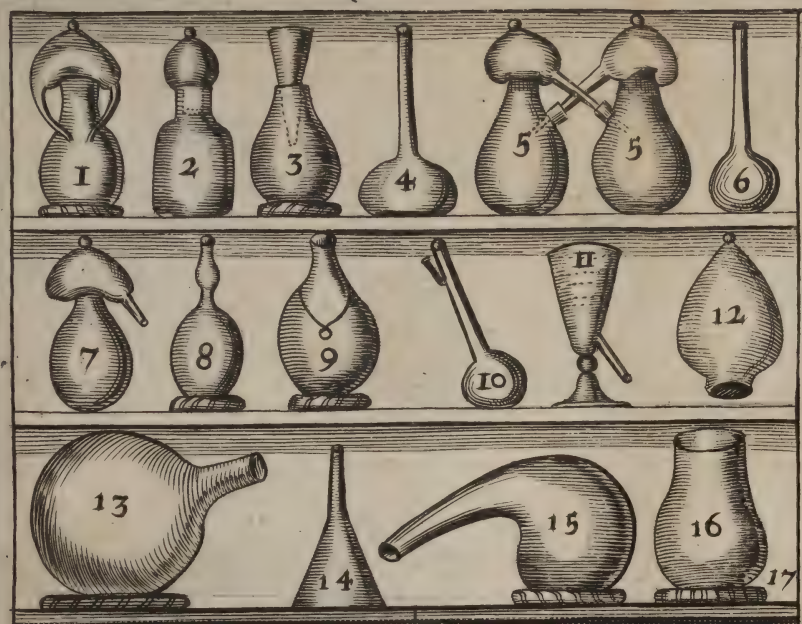
Of Leaves.

Although we have amply and generally spoken of Leaves of Vegetables, when we did handle their preparation, and their difference, in the beginning of this Chapter of Vegetables: yet, there remain many things to add, as much concerning the Distillation of their single Waters, as of their Spirits and Oyls; for, as concerning their extraction and reduction into Salt, we have spoken enough of it heretofore; yet will we say something more particularly of it.

We have sufficiently instructed the Artist how to proceed with odoriferous Plants; those that are acid and juycie, those we have called Anti-scorbutick, which are juycy and biting, by reason of the volatile Salt contained in them, to draw out several kinds of preparation: but, we must teach here, the way to distil Plants for the general use of the Chymical Apothecary, according to the *class* unto which they belong.

To this end, the Artist shall have recourse to the Figure hereby annexed, for the erecting a Furnace fit for his use in the distilling of inodorous Plants, and not acid, such as are Ladies-mantle, or Lions-foot, Burrage, Bugloss, *Cardous Benedictus*, Eye-bright, Fumitory,





1. a Pellicon or circulating vessel.
2. another vessel of circulation.
3. an infernall glass.
4. a Matrace or boult head with a flat bottom.
5.5. a twin or double pellicon.
6. a Matrace or boult head.
7. an alimbeck made of one peece or a head and body joyned at the first making.
8. the Phylosophers egg.
9. a double egg or one within another.
10. a little Matrace.
11. a Seperating glass.
12. a blind head or a head without a beake.
13. a receivour.
14. a glass funnell.
15. a Cornue or a Retort.
16. a Cucurbit or a body for an alimbeck.
17. a ring or round roule of Straw to hould glass vessels.

The Furnace and vessels to distill vigitables.

a. the body of the furnace.
b. the place for ashes to fall into.
c. the doore where fire is to be made.
d. a plate of Iron to containe Sand or sifted ashes.
e. the space or roome to be fild with Sand.
f. a Copper vessel or body tind over.
g. a head allso of copper tind or made of tin.
h. the receivers.
i. the stooles that hould up the receivers.
k. a pullie and cord to lift up the head by.
l. the registers or vent holes of the furnace.

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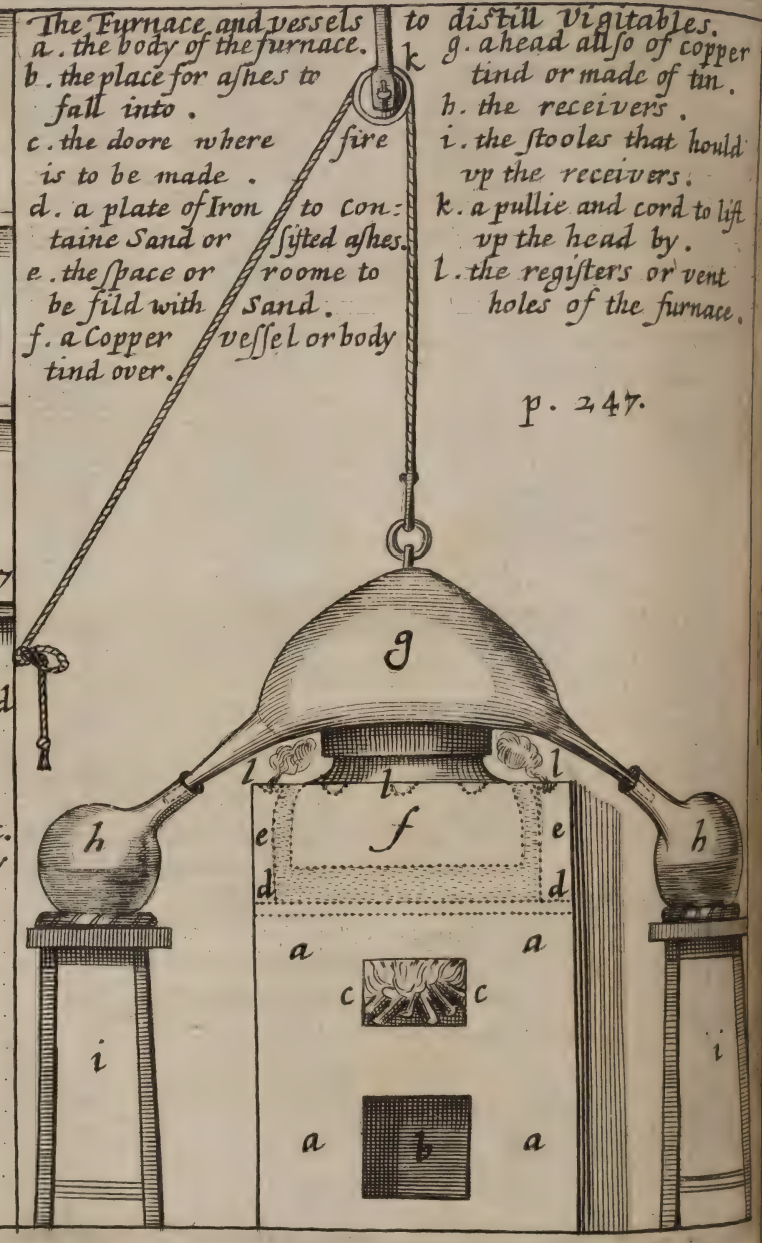

Fumitory, Lettuce, Mercury, Nightshade, Cowslip, Purslain, Dandelion or Taraxacon, Varvin, and all other Plants of this *classis*, or that are kin to it. To the end this Vessel may be used with some advantage, we must briefly explain the way how to do it, and the reasons why it is to be preferred to others. Those that have made use hitherto, and make yet dayly, of the Leaden Bell, and its Vessel under, to distil the Waters of Plants and Flowers, could never hinder their Waters to contract an ill odour or burning smell, which is called *Empyreuma*, because they were impatient and over-hasty in ruling their fire, and that they neglected to make use of some interposed *Medium's*, to hinder the too violent action of the fire, upon so ill fixt a matter as is in Vegetables: but, when Chymists came to discover this defect, they made it their study to prevent it. And to this purpose have they invented the construction of this Furnace by us represented, and likewise of the distillatory Vessel it contains, whereof follows the description.

First of all, build a round Furnace of 2 $\frac{1}{2}$ foot diameter, and as much in height, wherein is left room for an Ash-hole, and a *focus* for the coals to burn in; a foot higher then the grate of the *focus*, appropriate a Cauldron or Kettle made with Plates of eight inches deep, and of each side an inch less in breadth than the diameter of the Furnace, that it may receive heat from all parts; this Cauldron or Kettle must also have a brim three inches broad, to hold fast upon the sides of the Furnace, and supported under by two cross barrs of Iron. This brim must have eight holes in it, of one inch diameter, equally distant one from the other, which may be made to open and shut, with the same mettle as the Cauldron is, that these holes may be instead of Registers whereby to increase and suppress the fire. This Vessel must have in the bottom two inches thick of Sand or Ashes, to place thereupon the second Cauldron, which must be of tinned Copper, 1 $\frac{1}{2}$ inches less of each side than that of Iron which is destinated to receive it, and of five $\frac{1}{2}$ inches hight; this is the Vessel which must receive the Plant, Fruit or Flower which is to be distilled; or any other liquor, provided, it be not acid. This second Vessel is to be covered with its Head Limbeck, which must be capacious and rising in the way of an Arch-roof with two Channels or Noses, by which the

the Water is drawn off as it condenses in it; the remaining proportions may better be conceived by the Figure hereunto annexed; but we must, after this, speak of its usefulness.

The chief end of the Artist in the construction of this Furnace, and its distillatory Vessel, hath without question been to hinder the Empyreumatical smell, which is ordinarily contracted by the too near action of the fire upon the Vessel containing the Plant, which is to be distilled: but, that cannot happen here for these following reasons; First, That the fire doth not immediately act upon the Vessel containing the distillable subject, since it meets the bottom of the first Cauldron which offers the first resistance; after this, the Sand or Ashes make the second, because either of these two substances breaks the action of that devouring agent, and so the bottom of the Copper Vessel receives only a temperate heat, and yet sufficient to cause all the moisture of the matter to be distilled in the Limbeck Head to ascend, and there to be converted into Water, which is received in appropriated Recipients, and fitted for that purpose: Secondly, the Artist is not tyed to so great a care, nor so tedious an attendance: for, when he hath once put his distillation in a way, he may fill the *focus* with fewel or coals, without fear of any evil accident, provided he takes care to stop exactly the doors of the *Focus* and Ash-hole, and to leave no transpiration of Air to his Register, or at least so little, that it may simply be capable to feed and entertain the fire in its degree, when the two Noses of the Limbeck do drop in an orderly way, and without intermission: for then is he assured that he need not heed the governing of the fire six, eight, or ten hours.

But that which is yet more advantagious and considerable, is, that the Waters thus distilled, have all the requisite vertue in themselves, which doth consist in the essential Salt, or the volatile Salt of the Leaf or Plant whole with its Flower: but, you are to observe, that the matter to be distilled must be turned and stirred every four hours, if it be solid, raising softly the Limbecks Head by the string fastned to its pully for greater facility. And when the Plant shall be wholly dryed, it will be found void of smell, dry, and easie to be crumbled; in such a wise, that it may easily be reduced to Powder with the fingers end, without any kind

of burning at all; but contrariwise it preserves a green colour, more or less brown, or blackish, according as the Plant was juycie.

This Vessel doth not only serve towards the distillation of Herbs, but is useful also, to that of their Juyces; provided, they have been depurated in *B. M.* before they be put in the Still-Body, to avoid that the herbaceous odour, proceeding from the feces of the Plants, may not be communicated to their water: so shall you have a very good water, and the inspissated juyce or Extract improperly called of the Plant. It conduces moreover, to the distillation of fruits, as to make the water of green Walnuts, Apples, Melons, Cowcumbers, and other like Fruits. With it may also be distilled Milk, Sperm of Frogs, and Cow-dung; whereof is made the Water called *Mille Florum*; finally herein, better then in any other Vessel, may be distilled the Flowers of Nenuphar, red Poppy, Elder, Beans, and Honey-suckle: and to end in a word, it is a Vessel which ought not to be wanting in a Chymical Laboratory, or the shop of an Apothecary curious of distillation.

These Plants distilled in this manner, may easily be calcined, because they are very dry, and then their Salt be extracted, to joyn with the Water of the Plant; and so not only be made more full of vertue and efficacy, but also, fit to be better and longer preserved, without any alteration: which is the Apothecaries advantage, the satisfaction of the Physitian, and the benefit of the Patient.

We have yet to speak here of odoriferous Plants, which are Mercurial and Sulphureous, and which attain not to the true period of their vertue; but, when the outward heat of the Sun, and their internal *Archeus*, hath concocted and digested their superfluous moisture, which was a hinderance to their perfection. This kind of Plant nevertheless, is, that which furnishes us with the largest and faireſt harvest to provide the Shops of Apothecaries, and bestow their time with more advantage, and greater pleasure. The Plants of this *Classis* are, Wormwood, Sothernwood, male and female Anise, Dill, Chervile, Coriander, Fennel, Hysop, Marjerom, Feverfew, Balm, Penny-royal, Parsley, Rhue, Sabine, *Scordium*, or Water-Germander-Tansie, and all other odoriferous

Plants which have some analogy or correspondency with those of this *classis*. The right time of gathering these Plants to enjoy their vertue, is, when they are fully blown, and the Seed begins to be framed in their ears, or heads: for it is the right time in which the Root is wholly exhausted, and that Nature doth aim at the concentring and uniting in the Seed, the vertue yet dissipated and dispersed in the stalk, leaf, and flowers, and in this embryonated Seed. But the Artist must necessarily prevent the cementration, otherwise, there would be little hopes to extract the vertue of these Plants, by help of distillation by Water as it is done in the ordinary way of distilling Spirits. The reason is, because, whatsoever is of a saline and volatile nature, is in a manner digested, concocted and fixed by the union of this spiritual substance into an Oyl-fat, clammy, and viscous, which doth not easily communicate it self to water, unless it be by disuniting its parts and bringing them to fermentation, if I may so speak: but it is unfit to labour in vain, since we can take these Plants in the nick of time that nature hath not yet brought that Vegetable to the height of its natural predestination, which is the perfection of the Seed, the spring of the perpetuation, and multiplication of beeings.

When you shall have any of these Plants gathered in the morning, a little after the rising of the Sun, in the state we have related above; cut it very small with Cizzars, and put it in a Copper-body filled $\frac{1}{2}$ foot, neer the brim, pour Water upon it to the same height, and apply the Moors-head, or Still; lute the Joynts with Paper fillets pasted with Pap made of Flower and Water, then apply the fire to it, and leave the door of the Furnace and Registers open, until the drops begin to fall in the Recipient, and that you may not without burning your hand, grasp the Pipe which is between the Moores-head and the Still-body; then close exactly the Door and Registers, that the matter may not ascend in a body into the Moores-head, by too violent an ebullition: but, that the vapours may only be raised and carryed to the Pipe (or Worm) which runs through the Fat wherein is the cold Water, which condenses them in a Liquor mixt with Water, Spirit, and an ætherial and subtile Oyl, as is evidently to be seen in the Recipient where the spirituos Water bears up the Oyl swiming over.

The

The fire must be maintained in the same degree, until the Water issuing forth, be without odor and tasteless. After which, open the body, and take away the matter contained in the same, which strain, and squeeze the Herb, to put to dry and burn for the extraction of the Salt. But you must clarifie the decoction, & evaporate to a consistency of extract, which shall contain what is most fixt in the Plant: for, that which came out by distillation is of a volatile nature. You must let the Recipient, which contains the first part of what hath been extracted by distillation, be at rest, that the oleaginous substance may in time separate from the spirituous and aqueous, and gather above it; and this done, you must separate the Oyl and Water by the help of a Cotton, which will draw it to it self, and cause it to run into the Vial, which shall be tyed to the upper part of the Neck of the Recipient, as it will appear more clearly in the annexed Plate, in the figure adjoyning to the Furnace and its Vessel: and when the Cotton shall draw no more, by reason of the sinking of the Oyl; you must cause it to ascend, by pouring softly more Water of the same Plant, whereof the Oyl is extracted, and so continue till all the Oyl be separated from the Water. Having wrought upon a good Vegetable, and got good store of spirituous Water, you may rectifie it, to possess the Spirit by it self, which will go forth first of all, and so continue your distillation, till the Water comes without any smell, and then keep it for use,

This is the right method and way of Anatomizing the Plants of this last *classis*, to extract their vertue, and all what may conduce in them to the use of Physick: It is also the true method whereby you may attain to the intimate knowledge of Plants: for, as they abound either in Oyl, volatile, or fixt Salt, in Mercury or Spirit, the indication of their use for fixt or volatile maladies, *i. e.* where appear either Obstructions or Colliquations, are to be taken: and I am confident, that Physitians will receive much more satisfaction this way, then if they singly argue and rely upon the first and second qualities; so vainly hitherto attributed unto them by modern and ancients Authors: whence it appears, that Chymistry is the true Key to open Natural Bodies, whereby to discover their vertues, & apply them next to the uses unto which by the Creator's Providence they have been destinated for the

cure and easing of such maladies unto whom the infirmity of our nature hath subjected us.

It is not a fit place for us to enlarge here upon the vertues of the Spirits, Oyls or Essences, Extracts or Salts of these kindes of Plants, because we intend only to shew a general way of Operation, without coming to particulars: but he that desires to be better informed this way, let him consult the learned and excellent Dispensatory, of the experienced *Schroderus*, Ordinary Physitian of the City of *Franckfort* on the *Main*: where, in a very compleat Abbreviate, he will find an ingenuous description of the vertues of Plants, and all other natural products, handled; with an order and method worthy of so eminent an Author, to whom the Common-weal of Chymical Physick and Pharmacy hath no less obligation then the Galenick.

We will put an end to this Section, by a description of the manner to be used in extracting the Oyl of Plants, their volatile Salt, their Spirit and fixed Salt, without any addition; which is performed by a Retort in open fire in a close Reverberatory Furnace: taking now for an example, the Plant vulgarly called Tobacco. Were we in a time where this Plant should be less known, it would concern us to say somewhat of its original; but, there are so few that can be ignorant, that it is brought from the *Indies*, that it would turn to importunity to the Reader, to speak any thing more thereof. Let us only mention in our way some of the names, because Authors who speak of it, have variously denominated the same. The *Indians* call it *Petum*, or *Petechenune*, whence the vulgar name *Petun* amongst the *French*; and because *Jean Nicot*, Ambassadour for the Crown of *France* in *Portugal*, was the first who did send Seeds to the Queen, it was called the *Queens-weed*, (*Herbe a la Reyn*,) and *Nicotian*. Others call it the Holy-weed, by reason of its wonderful effects. And though this Plant be now cultivated in *France*, *England*, *Germany*, and the *Low-Countreys*, and doth prosper there very well; yet, that which comes directly from the *Indies*, dryed and prepared there, is much to be preferred before that which grows in our Clime: for, the Sun's heat is too weak with us, to digest the moisture contained in the same, and to prepare in it that volatile Salt and balsamick Sulphur, which does constitute the chief vertues of such remedies as are drawn out of it. Not, but this

that new and fresh gathered Tobacco, such as grows in our parts, may serve to make Salves, Plaisters, Syrups, Honey, and the plain Balsom, so as it is described in modern Dispensatories, as also many other common remedies, mentioned in Authors, who have left upon record the praises of this wonderful Plant. But, as we will anatomize this Plant without any addition, and give to understand, what are the best inward qualities of it: we think it fitteſt, to take well qualified Tobacco, such as that which is brought from the Plantation of *Virginia* in the *West-India's*. And I cannot but declare my wonder, that Physitians and Chirurgions have not continued more to practise upon this Plant, and make use of it, as much inwardly as outwardly, since it produces effects, which are above the expectation of those which can dextrously apply the remedies it doth afford: but, that it may no longer lay buryed in oblivion, you must distil it after this following manner.

℞ ℔ iij. or iiij. of *Virginia* Tobacco, neither sophisticated nor corrupted; shred it grossly, and put it in a Glass Retort, which place in a Reverberatory Furnace, upon the cover of an Earthen pot turned upside down, and kept up upon two Iron-bars, putting a handful of Ashes or Sand upon the said Cover, to hinder the breaking of the Glass by the contiguity of the Earthen cover, whose encompassing is to the Retort instead of a Lute, and a *medium* interposed to break the violence of the fires action: cover the Furnace, and fit your Recipient to the neck of the Retort, lute the Joynts thereof, with a good salted Lute, and let it dry gently; then give a gradual fire, and encrease it by little and little, until the Recipient begins to be filled with clouds and vapours, at which time keep the fire in an equal temper, until the Glass begins to be freed from fumes; then give it the last and extreme degree of fire, which is, that of flame, that the matter may calcine, and no volatile, saline, or oleaginous substance may remain, and when the Recipient grows clear of it self, and that, though the fire doth continue its action, no vapour nor liquor comes out of the Retort, cease your operation: All being grown cold, open the Vessels, and pour what you find in the Recipient in a Glass Bottle, that the Spirit and and Oyl may separate one from the other; after this, filtrate the Spirit with Paper, and the Oyl

ſhall remain in the Funnel with the Paper, which you muſt break with a little hole in the bottom, and ſo make the Oyl drop in a Vial, then rectifie the Spirit by ſeparating the Phlegm.

The Oyl may be kept without rectification for outward uſes: but, if you intend it for any internal uſe, you muſt rectifie it in a Retort in Sand or Aſhes; and to proceed more artificially, mix your Oyl with the remaining matter left in your Veſſel after the firſt diſtillation, until all be reduced to a maſs or lump, whereof you may make Pellets of a competent bigneſs to be put in a new clean Retort: which afterwards placing in a Sand Furnace, draw off your Oyl by a ſecond diſtillation, which will yield the ſame very pure and ſubtile; which then may be inwardly uſed for ſuch purpoſes as we ſhall mention here-under.

This done, put all what remained from the firſt and ſecond diſtillation, in an Earthen Pot not glazed, or in a Crucible, to be calcined with a circular fire, until it be reduced to whitiſh or grayiſh Aſhes, which you muſt put to digeſt in a Matraſs in Aſhes, with a ſufficient quantity of Phlegm, which came out in the rectification of the Spirit, to diſſolve therewith the Salt contained in theſe Aſhes; filtrate this firſt ſolution, and pour new liquor upon the Aſhes: and thus continue until the Water comes out taſteleſs, and inſipid, as it was firſt put in: then put together all the filtrations, and cauſe them to evaporate in an Earthen Platter, to a skim in a boyling Bath, and ſo place it in a cold Cellar to ſhoot into Cryſtals, or dry it throughly in the ſame vapour, working it gently with a ſmall woodden Spatula, and, when it is throughly dry, keep it for uſe in a well ſtopt Vial.

We ſhall not labour here to make a deſcription of the general vertues of Tobacco: for, there are ſo many modern Authors that have treated thereof, according to the rules of ordinary method, that it would be ſuperfluous; I am only obliged to ſay, that I wonder how theſe Doctors, who know Tobacco only by the rind, and ſuperficially by his firſt and ſecond qualities, do ſtretch the paſſages which they find in *Hippocrates* and *Galen*, to bring them to their own ſenſe; and make theſe two great Genius's of Phyſick to ſpeak for and againſt Tobacco, without ever having the ſight or knowledge of it, neither by its ſhape nor effects.

Let

Let us do otherwise, and show, that Chymical Physitians are not only contented with the superficies of things; but to the contrary, that they open them, to penetrate to their very center, and discover what good vertue they do contain, and appropriate it afterwards to external and internal maladies, to which they found by re-iterated experiences, noted with a solid judgement, that they did conduce.

The Spirit of Tobacco is so full of volatile Salt, that it must insinuate thereby its vertue; it being the property of this Salt to deterge, attenuate and dissolve whatsoever is against Nature, of whatsoever quality, and in what part soever contained: wherefore this Spirit may successfully be used in the Asthma and other oppressions of the Breast, and the parts of it, proceeding most commonly from glutinous and tartarous matters, of which this Spirit is the true specifical dissolvent; it is taken in Hydromel, white Wine, Broth, distilled Waters, or incisive attenuating and pectoral decoctions. The *dosis* is from iij. drops to xv. or xx. according to the age and strength of the diseased Patient. It works chiefly by Spitting, Urines, and Sweats, provokes even sometimes Vomitting, if it meets the Stomack of the Patient full of any mucilagineous matter, because this Spirit doth immediately act upon, elevates and ferments this hurtful lurking matter, and so *quà data porta ruit*: and if this Spirit is profitable, inwardly taken, its use is no less marvellous outwardly applyed; for it hath not its like, to mundifie sinewous and cancerous Ulcers; above all, it doth rarely well in the curing of Fistula's: It excels also above all other remedies, for fresh Wounds, and Contusions, if it be mixt with Urine to wash the parts, and afterward applyed warm upon the wounded part: and, for the last commendation of this Spirit, let us say, that *Hartmannus*, who was a very famous Physitian, as much renowned for the Theory as the Practical part, hath found no other remedy against the Gritalline, which is the most pernicious and dangerous accident which can happen in the French disease, than the Spirit of Tobacco, which appeases, as it were, miraculously the extreme pains of this pernicious disease; resolves powerfully that horrid venomous substance by which it is caused; and hinders, in a short time, the evil and mortal consequences which ever do accompany it.

We

We have said, that some part of the Oyl extracted from Tobacco by distillation, without rectifying, was to be kept, and that with much reason; because, as this Oyl is not destinated to internal uses, so is there no need to purifie it, with so much exactness: there is notwithstanding another reason yet more pressing and pertinent, which is, that rectification should deprive this Oyl of the greatest part of the volatile Salt which it contains, and which is intimately joyned to its Sulphur. The greatest external use of this Oyl, is to consolidate new wounds, mundifie and cure all evil Ulcers, and remove all accidents of contusions, because it potently resolves the extravasated bloud, and so doth hinder the heat and inflamation, which are ever forerunners of suppuration, which this extravasated bloud presupposes to be necessary: But it is never the intention of Nature, provided she be in time assisted by some balsamick remedy, such as is the unrectified Oyl of Tobacco. It is also good for the Tooth-ach, and to dissipate the chalky knots proceeding from the Gout, and Venery. Now, as it is both the volatile Salt and Oyl which joyntly produce these rare effects, it appears, that the unrectified is best for use; but, when you will make any internal use of this Oyl, you must in a manner correct its empyreumatical odour, which is very unpleasant, and causes a rising of the Stomack, and that cannot be performed but by rectification: It may be with a very happy success employed against Suffocations and fits of the Mother, against risings, inflations, and irritations of the Spleen, which do cause short breath, by reason of the compression of the *Diaphragma* or Midriffe. It may also be exhibited against intermittent Feavors a little before the fit comes, in Water of small Centaury and ground Pine: But I rather advise, that the *Clyssus*, whereof we shall shortly speak, may be made use of for this purpose. As for the fits of the Mother, or other accidents thereof, you must use the Water of Penny-royal or Savin: and for the Spleen, Water of Sassafras, or of juyce of Chervil. This Oyl is a very good antileptical remedy, provided, it be exhibited upon the fall of the Moon, in Camphir'd Theriacal Spirit, or in Volatile Spirit of Harts-horn, mixt of *Lilly-Convallium* and Balm. The *dosis* is from ij. drops to x. But you must note, that this Oyl must be made soluble with

with Sugar powder'd before you mix it with aqueous liquors. We have only to say a word more of the fixed Salt of Tobacco, which possesses all its vertues: for, besides that it is a mundifying skarrifier, very gentle in being applyed upon the driveling foul flesh of Ulcers, and upon the callous sides which hinder cicatrizing; moreover, it gently moves the belly, if it be taken in Broths: it is also contrary to Worms, and all other corruptions generated in the bottom of the Stomack and the Entrails. It is also diuretick and disopiling; removes all obstructions in the parts adjacent to the Ventricle, chiefly those of the Mesentery and Pancreas; it cleanses all the impurities of the Womb, if inwardly taken; and if you place the party diseased upon a close stool, and perfume her under with leaves of Tobacco, yeelding a steem in the way of a vaporous Bath, having boyled the Tobacco before in Urin and white Wine. The *dosis* of the Salt is from iiij. to xv. or xx. grains, in decoctions or appropriated to the malady for which it shall be used.

But if the Artist will be at the trouble to make the *clyssus* or compound out of 3 principles of the Plant, which are, the Spirit or Mercury, the Oyl or Sulphur, and the Salt mixt together, in such a proportion as we have already taught, and puts them to digest together, until the inseparable union of them be made, it will be without compare, a much more efficacious remedy, than any of the three principles separated: but the *dosis* must be less by half proportion.

It may be, many will wonder, that I should attribute so many, and so different vertues to the remedies extracted from Tobacco: but I doubt not, their wonder will cease, when they shall take the pains, to make reflexion upon the different uses which it is put to when the Plant is but newly gathered, or even in dryed leaves, by the common people, and most Chirurgions and Physitians: for, it is taken in smoke, in Masticatory and Powder, to provoke Sneezing; whereof the effects are various, according to the various constitution of those that use it: it inebriates some, it prevents drunkenness in others, causes vomiting, sleeping, watching; to be short, it seemeth, that this Plant (as in part it is true) hath some universal vertue, not to say divine: It is also to be considered, that there is some Chymical mystery hidden under

the preparation of this leaf: for, though those that prepare it, are not alwayes capable to give a reason of their proceeding, yet the Natural Philosopher doth ever find much to Philosophise upon; since there is an observation to be made in chusing the great middle leafs, rejectingthe undermost, and cutting off all the shoots growing in the sides of the stalk of the Plant, with the buds or beginnings of the flowers, and cutting also the top of the stalk, and all the small leaves which grow on this and that side of the great ones, and of the stalk, to concentrate the spirituous and saline nourishment of the Plant, and preserve it for the sustenance and food of those 10. or 12. great principal leafs, which grow above the middle. There is also a nicety of constellation, whose observation is very necessary to gather Tobacco, as well as to sow it, if you intend to do something with it more then the vulgar. The seed of Tobacco is dedicated to the signs of *Aquarius*, and of *Mars*. It is to be sowed in the increase of the Moon in *April*, a little before the stepping of the Sun into the sign of *Aries*; and that with great reason and prudence, because it hath need of water and moderate heat in its beginning, which temper is scarse found in any other season of the year. It is gathered in the decrease of the Moon in *August*, when the Sun is in *Leo*, which is a constellation of dignity, strength, and vertue; and in a season, which may by its heat digest, as is required, the superfluous moisture of the Tobacco-leaves. But, that which deserves yet better our consideration, is, that the leafs, buds, and growing flowers are not useless, but contrariwise, are as a Balm, and a preparing and preserving Liquor, without which, the best conditioned leafs should lose their vigour, strength and vertue, either by their too quick exsiccation, or their sudden corruption and putrefaction. The juyce of these parts so gathered and cut, is extracted after they have been well beaten in a stony or woodden Mortar; then let them be boyled with sweet *Spanish* Wine, called decocted Wine, or with Malmsey, until all be well and curiously skimmed; after which, add some Salt, until the liquor hath acquired a taste and saltishness neer unto that of the brine of the Sea, and at last throw into it Anise and Ginger very finely powder'd; and let this liquor rest that it may depurate, and leave its feculency in the bottom of the Vessel: this done, put it in Glasses very well

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stopt; otherwise, all the vertue thereof will fly away. With this liquor are the Tobacco-leaves to be seasoned, when they are gathered: for, they use to be dipt one after another in a Bucket filled with this liquor, made something more then luke-warm; for, were it boyling, the vertue thereof would fly into the air, by reason of its volatility: and besides, the too violent heat would bake the leaf dipped in it, and make it useless. After this, lay these leaves thus prepared one on the top of the other, and cover them of all sides, that they may lay to digest and ferment in a manner, until the liquor hath penetrated them in every part thereof, and that they begin to grow hot; then take one of these leaves, spread and expose it to the light, to see whether it hath begun to change colour or no, which colour must be ruddish or inclining towards a rusty red, and if you find it so, uncover quickly your Tobacco, separate the leafs, sow or joyn them together, and expose in a covered place, but open of all sides, to the free passage of the air, so ordered, as that it may alwayes be shut up to the Sun and Rain, and, that so the leaves may temperately dry, until they be rolled up, or pressed whole in Boxes well wrapt up in their own leaves, and some other covering about, to keep their subtile and volatile vertue from exhaling, which defect makes the Tobacco commonly call'd stale Tobacco, fit for nothing, unless it be restored to some proportion of its strength and vertue, by the decoction of some parcel of good Tobacco made in *Spanish* Wine; though some make use only of a little Beer, with a few Spices infused in it; and this is called, mended or restored Tobacco. I was the rather invited to describe this Preparation, to show the necessity of the choice in Tobacco for preparing of good remedies, and to give the more occasion to admire the wonders shut up by the Creator's hand in this Plant, which is not applyed to that lawful use and purpose for which his infinite goodness hath produced it, namely, for the recovery and preservation of health; but to the contrary, is abused and turned to excesses, which do offend his Divine Majesty, wound and ruine man's health, and spoils families and civil society.

Sect. III.

Of Flowers.

AMongst that great number of Flowers, which the Vegetable Family supplies us with, with so fair so pleasant and so diverting a profusion; Nature seems to have bestowed no greater care upon any then the Rose, which may in a manner be called *the Queen of Flowers*, as much for the beauty and pleasingness of its colour and smell, as, because it is that which amongst all the Flowers, supplies both Physick and Pharmacy with the best imployment. For one of the Authors, which hath with more exactness examined all what Ancient and Modern Physitians have drawn from the Rose either single or composite, reckons as much as 37 several operations, which this noble Flower lends to their Art: which makes me wonder how the *Greeks* should have been induced to give the name of Flower (ἄνθος in their language) to the Rosemary Flower by *Antonomasie*, a kind of Rhetorical speech, and, as it were, by excellency; since this Flower doth not furnish so great a harvest of remedies as the Rose doth. Notwithstanding, as the Rosemary Flower is endowed as well as the Rose with many excellent vertues, and is even more balsamick; we will make use of these two Flowers in the present Section, to teach Artists the manner of operating upon Flowers, that by the example of these two, they may proceed upon others of the like or approaching nature: For, as concerning other kinds of Flowers, we did sufficiently insinuate how they were to be wrought upon, when we spoke in general of Plants, in the beginning of the Chapter of Vegetables.

Of the Rose, and of the several Chymical Preparations made by it.

BEfore we begin to speak in particular of the several Operations which an Artist may make upon the Rose, it is necessary we should say something of its differences, and the election which he is to make of them, to attain the proposed end of his work: for

for Roses differ in vertue according to the more or less of their colour taste and smell. For example, Province Roses, or Red Roses, are higher in colour then the rest, of a more harsh and austere taste, their substance more compact and less alterable then that of the other kinds, which argues a better proportioned mixture of their Salt and Sulphur, wherefore they are more cephalick and stomachal, as the Physitians upon this account use them rather then others for Conserves and making of Vinegar: but chiefly to extract the tincture after they are dryed, as we will teach hereafter. The pale kind of Roses, which are called common Roses among the cultivated and garden kind, are of a more penetrating and subtile smell then the Province, abound more in juyce, and are sooner faded and altered; in so much, that they can scarse be dryed; they have also a more saline and bitter taste which is a token of their purging and loosening or colliquative quality, as appears by their effects: wherefore they are most used for Distillations, Syrups, and Honeys, by reason of their abounding Mercury, of their Sulphur and Salt preponderated by their moisture, which renders them capable of a quick fermentation, and makes them easily to communicate their vertue, to such subjects as do participate of any of the three principles abounding in them.

There is a third kind of Roses, which are called Damask Roses, or Musk Roses, of a very fragrant smell, and much less violently affecting the brain, than the Pale Roses, not making so strong a colliquation, when they are used in purging, & less prejudicial to women subject to fits of the Mother; which is the reason they are preferred to others, in the preparation of purging Syrups either single or compounded: but as these Muscat Roses are not found every where, and for the most part, but in the hands of curious persons which cultivate them, rather for the pleasure of sight and smell than Physical uses; it will be lawful to make use in their place of the Wild Roses, which being gathered in due season, will easily supply the effects of the other.

The fourth kind of Roses employed by Physitians, are, the white Rose, only used for the Eyes and Women, for the reasons alledged already: we will not here waste frivolously our time in making a description of all the ordinary operations which the Rose yields

to Pharmacy: We shall only say, what we think to be necessary for instructing the Chymical Apothecary, to draw from this lovely Flower the purest and best part of it, without loss of any of its vertues. But before we come to particulars, we must briefly indicate the time in which Roses are to be gathered, that you may find in them the advantages which Nature hath placed. To this end, when the Artist intends to make any use of Roses, he must cause them to be gathered a little after the break of day, when they have yet about themselves some small remains of the Balsamick moisture, which the cool of the night did as it were gather and concentrate, both without and within these Flowers: above all things, care must be taken, that it should not be after a Rainy-day; but chiefly, when you intend them either for conserve or drying: neither must they be gathered long after the rising of the Sun; because, that Planet seems greedily to suck the Balsom and Nectar of all the Flowers which are of an ætherial and delicate substance: and amongst all the rest, Roses are the most delicate; therefore those that intend to work upon them, must take their time opportunely, as we said just now.

How to Extract the Tincture of Red Roses.

HAving gathered your Red Roses, commonly called Province Roses, with the required care you must take of their white bottom, when they are not yet fully blown, but only pretty well advanced in their buds; neither must they be of the double kind, but single and ordinary Roses; you must, besides, let them dry in the shade between two Papers, that nothing but superfluous moisture may exhale; and, what shall be of odour and colour may be concentrated by a slow and moderate exsiccation: for, it is in that properly that consists the vertue required by Physitians in the tincture of Roses, which is thus made.

℞ ℥ i. of thus dryed Roses, and put them in a Platter of Juggmettal, or white Earth, pour upon it as much boyling water as is required to moisten them, and when they are well soakt, pour upon it drop by drop, still turning the Roses, ℈ iiij. of good Spirit of Vitriol, or as much of acid Spirit of Sulphur, or Spirit of Salt, according to the indication taken of the disease and remedy;

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after which, pour upon the whole ℔ iiij. boyling water, and cover the Vessel until the liquor be cooled, which run through a Flannel or Filter. There may be added to each pound of Tincture, if the Physitian prescribe it so, ℥ i. or ℥ ij. of Sugar; and in case it agrees with the Patients constitution. This Tincture is an excellent remedy to correct all defects of the Stomack, and chiefly, when out of order, by vomittings and lasks; when also digestion is depravated, and natural appetite to meat is defective; either by reason of some relaxation of the fibres of the Ventricle, or the dilatation of its Membranes: above all, it is a specifical remedy, in the disease called *Colera morbus*, or voiding of the Stomack both wayes, provided the Patient drink it by very great draughts: for, the Balsamical vertue of the Rose, assisted by the Stomachical acidity of Vitriol, Sulphur or Salt, doth admirably settle again all the agitations and tempests of choler, and turns them to a gentle and pleasing calm: It is also a very pleasing and useful drink in all hot Feavers, either continual or intermittent: for, for the most part, these Feavers do proceed of some corruption generated in the Stomack, which hath produced an alteration in the ferment of digestion, which never fails to introduce the malignity of the conceived Ideas in the food of the Patient, and continually carries this venom, and conveys it in the Veins and Arteries, which causes the differency of Spirits, followed by the Feaver and its redoubled fits. Now as this maxim in Physick and Philosophy is very true, that, *Sublata causa tollitur effectus*, the cause being removed, the effect must cease; and these Feavers in their beginnings, are nothing else but the products and sequels of the corruption made in the Ventricle; it follows of necessity, that this cause being taken away, so must of necessity cease the Feaver, which was only an effect thereof. And, as we have said heretofore, That the tincture of Roses did settle again the Stomack and its functions in their duty; so must the ordinary drink be made thereof, which Patients troubled with that kind of Feaver are to take.

This drink also is of no less efficacy against Dysentery, Lientery, and generally, all kinds of Lasks, which do cause in the Patient a very importunate thirst and drought of mouth, which this tincture immediately allayes, and, as it were, miraculously quenches.

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The manner of Extracting the Water, Oyl, Spirit and Salt of Roſes.

WE will not repeat here, the reaſon why we doe take the pale or common Roſes, nor the time fitteſt for gathering them, having already ſpoken thereof in the beginning of this Section. Let us only ſay, how the Chymical Apothecary is to proceed, in drawing the vertues contained in the ſame. And to begin:

℞ ℔ viij. of pale Roſes, and pick them, ſeparating the leaves from their ſtalks, which nevertheleſs, muſt not be thrown away, as is the common practice: but, contrariwiſe, left with the Roſes becauſe, that yellow ſubſtance which is in the midſt of the Flower, contains a material Oyl, which in the diſtillation aſcends in the form of Butter ſwiming on the top of the water, drawing to its ſelf the ſubtile and ætherial Oyl of the leaves of the Roſe, and fixing it; ſo, that thus proceeding, the Artiſt will find the double or treble part more of Oyl than otherwiſe: put the Roſes in a Body, whereof the Head, and Pipe or Worm paſſing through the Fat of Water to cool the aſcending Spirits, be made of Tin, or at leaſt of Copper newly Tinned: becauſe otherwiſe, the Oyl would draw the taſte and greeniſh colour of the Copper, by reaſon of its volatile Salt very penetrating and very active. Pour upon the Roſes, which ought not by any means to be bruiſed, the fourth part of Rain-water, if it be poſſible, or of River water; then diſtil in the manner often already mentioned, Ceaſe not your fire until you perceive by the ſight, taſte and ſmell, that the water iſſuing participates no more of Oyl, being inſipid and without ſmell; and when you perceive it to be ſo, open the Body of your Still, and empty it in a Cask whereof the Lye hath been newly taken away, and begin your diſtillation with new Roſes, that you may not interrupt and loſe the heat of your Furnace; and continue this operation until you have a ſufficient ſtore of Oyl to do therewith, what we ſhall hereafter declare. And when you have gathered all your diſtilled Waters in a great large Glaſs Veſſel, let them reſt together, that the Oyl may gather on the top, and ſo be drawn with a Silver Spoon: or, to proceed yet better, ſtrain all your Waters through a Linnen, ſpread over a * ſquare Frame

*un Cavlee.

Frame, and all the Oyl will remain upon the Linnen, which must be preserved in a very well stopt Bottle, by reason of the subtility and activity of its parts. If you will preserve your Water as it is, you may, for it is good; but, you may nevertheless, make it better, and much more active, and efficacious, if you cohobate it twice over ℔ viij. of Roses bruised in a Marble Mortar. And, if you demand the reason why we have said above, that they were to be left whole, and now we say, they ought to be bruised in a Mortar; the answer is, That in the first distillation, we had no further intention then to extract the Oyl, without caring much for the goodness of the Water; and, that as the Artist must know, the Oyl is confounded with the Salt and Spirit, by the mixture and contusion made in the Mortar, which would hinder it to ascend and be freed by the action of the fire in distilling, because the Spirit and Salt do invisibly keep it amongst themselves in the Water: upon which is grounded our prescription to bruise the Roses in the second distillation, intended only for the meliorating the Water, and communicating unto it a greater vertue.

We return now to the remainder of our distillation left in the Cask; which must be strained through a coorse Linnen Strainer, and the Cake left must be dryed, and calcined, to extract, the Salt thereof in the manner above related when we spoke of the fixed Salt of Vegetables. But, as we will put the liquor come forth in the straining to ferment with new Roses; it might be asked, why we have ordered the distilled Roses to be strained before fermentation; and this question, being not without good grounds, must be answered and satisfied with pertinent reasons; by which it may appear, that we have not said it without very good grounds, and an absolute necessity: for, had the substance of the Roses been fermented, the fixed Salt which is in them should have been dissolved by the action of fermenting, and so volatilized, that all this saline substance should have been converted into Spirit, whereas the first distillation did extend no further (neither was intended) then to extract the ætherial Oyl, and a portion of volatile Salt of the Flower. You must then moderately warm that which hath been strained, and put it to ferment with xx. or xxx. ℔. of new whole Roses, with either Yest or Lea-

ven, observing all the requisites, and necessary precautions in this operation, which are sufficiently delivered in the beginning of this Chapter, to which we send back our Artist; as also for what concerns distillation, and rectification of the Spirit to be extracted.

The way of preparing the true Essence of Roses.

THe example we are now to give, is not one of the least mysteries of Chymistry, wherefore we will deliver it with all possible exactness, that the Artist may make use of it with delight and advantage. To this end, take ℥iiij. of Salt of Roses, and put them in a small Cucurbite, and pour upon ℔ ß. of the best Spirit of Roses: then apply a Head to your Cucurbite, and lute exactly the Joynts thereof, and draw off the Spirit in the slow heat of *B. M.* that it may become alkoholisated, that is to say, well dephlegmed; for then nothing but the pure and meer ætherial substance will ascend, and the Salt keep all the Phlegmatick part. But this subtiliating of the Spirit is not yet sufficient; for, it is required besides, that this Spirit be impregnated with the purest and subtilest portion of the fixed Salt upon which it was distilled, and this is that Spirit which Chymists do call alkalizated, as if they should say, a Spirit participating of the Salt *Alkali* of its Plant; a name given by the *Arabians* to all kinds of Salts extracted from Vegetables or their parts, by the help of calcination and elixiviation. Put then the Salt remaining after the alkoholized Spirit in a Crucible, and dry it by moderate degrees to the fire, until it grows red; and above all, take great care that it should not melt, and when it is moderately cooled, put it in the Cucurbite, and the spirit being poured upon it, distil as at first; and so continue and re-iterate three times, drying the Salt, and distilling the Spirit, to acuate it, and furnish it with a sufficient portion of its own Salt, which will be an uniting mean to joyn and mix them indivisibly together, and to frame thereof an admirable Essence, as much for its sweetness and perfume as for its medicinal vertues, which do far transcend all other operations of Vegetables. Now the chief of all this mystery, is, the Alkalisation of the Spirit; wherefore the Artist must have a very exact regard, to make it with all requisite punctuality. To make

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the mixture of these two bodies with a requisite proportion, you must put one part of the ætherial most pure and most subtile Oyl, and pour upon it three parts of the alkalized Spirit, and you shall see them instantly unite together in a wonderful manner; and so shall you have an Essence fit to be mixed to all kind of liquors, which infinitely recreates the senses by its pleasant smell. And if you joyn to it the Essence of good Ambergrice, and Limon Rind, it will prove a Cordial and Cephalick remedy, not to be parallel'd by any other, as much for the excellency of its smell, as for the subtile & efficacious vertues of the ingredients which compose the same, and are very penetrating, capable of raising up again the Spirits dulled and extenuated, by soporiferous and lethargick affections, which most commonly strike to the Brain, and benum its affections; as also it is of great vertue in all failings of the Spirits and passions of the Heart; whether this Essence be given in Broth, Wine, or Cordial Water, or even any drops be let down between the teeth if they be closed, and thrusted with a Feather or a little Cotton in the Nostrils: The ordinary *dosis* of these Essences is from ij. to vi. drops viij. or x. in any of the aforementioned Vehicles.

In this very manner may be prepared all the Essences of such Vegetables, as yield an ætherial Oyl, and may be fermented to extract the Spirit; whether those Plants be odoriferous or no. For those which we do not like for the smell, have notwithstanding their profitable uses, and specifical vertues, for some part or other of the humane body. But, as there are some substances extracted from Vegetables or some other bodies, which do yield notwithstanding Oyls of very great vertue, but would afford much more, were they converted into Essences, as are Gums, Resins, and yellow Amber; we will say here only in few words, that alkalized Spirit of Wine may be made use of to essencificate them, or the Spirit of some other Plant which may have a correspondency with the Disease or affected part. And this shall suffice for the Rose. We come now to the Rosemary, which may be used in the same manner, and according to the same directions, and so have we no more to add here, but only the manner of preparing the Water, called of *S. Elizabeth*, or *Isabelle*, Queen of *Hungary*, which is in truth a worthy noble remedy.

To make the Queen of Hungary's *Water with the Flowers of Rosemary.*

℞ ℥ xx. of Rosemary Flowers, gathered a little after the rising of the Sun, put them in a double Vessel, and pour on them ℥ xxx. of alkoholized Spirit of Wine; lute exactly the Joynts where they meet, and put in digestion to extract in a very slow heat of the vaporous Bath, during three natural dayes: let the Vessel cool before you open it; after that, draw the Tincture and strain the Flowers: filtrate and keep by it self one part of this Balsamick Tincture, to use both internally and externally; for it hath as much if not more vertue than the Water, but is not so pleasant nor subtile. You must distil the other part in *B. M.* in a heat so well graduated, that the heat of the Limbeck may not contract any heat at all, and that the Artist may distinctly reckon two or three, between the falling of each drop, and so continue till you have reduced the Tincture to the consistency of an Extract. You must exactly stop the Bottle in which you put this Water, because it is extraordinarily subtile. *Zapata*, an *Italian*, both Physitian and Chirurgion, doth attribute to the remedies extracted from Rosemary almost innumerable vertues, and that with much reason; for, this Plant is full of a volatile Salt and Sulphur, two of the chiefest agents of Nature: but chiefly, when their vertue is animated by the subtility of the Spirit of Wine, which doth in a moment penetrate from the center of the Stomack to the circumference of the Body, and doth inspire a new vigour into all the functions of our life. All the vertues of this Balsamick Tincture Water and Extract, can scarse be worthily enough described and magnified. For, what I beseech you, can be more wondered at and magnified, then the restoring of the Queen of *Hungary*, by the help of this Water, when she was sick with Palsie and Gowt, and grown so decay'd, that she had no motion of the body free from impediment, and that, being 72 years of age; and yet this subtile and balsamick Spirit proved to have so noble irradiating a vertue, that she was restored to a very great degree of health and vigour; insomuch, that she did not appear to have been above five and twenty years old: and the King of *Poland*, taken with her

her beauty and youthfulness, courted her to his wife. This is a remarkable effect of this remedy as to the internal vertue, which we owe to the faith of History: But I must also relate here another external cure, to prove more and more the noble and excellent vertue of this Water, by what happened to a Serving-Maid in my own house; which by falling upon the hindg of a Door, had received a great bruise in the Fore-head; and having on a sudden repercuted the tumor raised in the place, by binding hard upon it Linnen dipt in fair Water, with a piece of Gold put upon it, took away all outward sign of any hurt; but, the accidents which followed a little after, made it sufficiently appear, that there was bloud shed under the *Pericranium*: for she soon after grew heavy and sleepy, did stagger as Drunkards use to do, and spoke nothing but idly, without feeling, with all this, any sharp pain, and leaving any outward token of her Disease, which occasioned me to apply a cross-folded Linnen dipt in this Water of the Queen of *Hungary* upon the place where she had received the contution, and to make her take a good spoonful of it inwardly, which did put her in a slumber, or rather sleep, for the space of one hour; and when she awoke again, she said, she found her self cured, and immediately walked and recovered her perfect Senses: but, that by which her cure did much better appear to be true, was, that all her Fore-head, Nose, and the parts about the Eyes, did appear of a colour as of Marbled Paper; because, the bloud which had setled under the Skull or *Pericranium*, and did cause all the former accidents, had been digested, and as it were dissolved, by the subtle and penetrating vertue of this admirable Water: so, that after this, she needed no more but the application of a second folded Linnen, which perfected the cure, without ever any accident since. I have yet many other Experiments and Observations made of the noble Effects of this Water: but, it suffices to have spoken generally of the vertues and *doses* of the Tincture, Water, and Extract. They are in truth specifical remedies, and chiefly dedicated to the Brain, Womb, and all Diseases incident unto it; as Apoplexy, Palsie, Epilepsie, Vertigo's, and other like Diseases. They strengthen the sight, and do correct the ill savour of breath, corroborate the Stomack, remove the obstructions of Liver, Spleen, and the Mother; are wonderful against Jaundise, and a sure remedy

againſt the Whites; finally cheriſhes the Heart and all it functions, repairs decayed Memory, and preſerves in an equal ſtate and vigour both internal and external Senſes, either inwardly taken, or outwardly applyed. The *doſis* of the Tincture and the Water, is from ℈ i. to ℈ iiij. in white Wine, Broths, or ſome other appropriated liquor to the diſeaſe. But you muſt note, that in caſe you exhibit theſe remedies in Broth, you muſt expect to mix them, until the Broth be of a temperate heat to be taken, otherwiſe all the vertue would be loſt and vapour away, by reaſon of its too great ſubtilty. The *doſis* of the Extract is from ℈ ß. to ℈ i. either alone or mixt with ſome Conſerve, or diſſolved in white Wine, or ſome diſtilled Water. This remedy is ſo neceſſary by reaſon of the accidents happening every moment in a family, as hurting, burning, over-wearineſs, and colds, that it would be almoſt neceſſary to have it ſtill at hand, to prevent by a ready help and ſure aſſiſtance, the evil conſequences and great griefs which ordinarily follow the beginning of theſe Diſeaſes. *Principiis obſta: ſerò medicina paratur, Dum mala per longas invaluêre moras.*

Sect. IV.

Of Fruits.

FRuits are that part of Vegetables which are leſs regarded and made uſe of in Chymical Pharmacy: wherefore, we ſhall have little to ſay concerning their Preparation. Since we find *Coloquint* only worth our taking notice, and beſtowing of our pains. And, as it is a Purgative often uſed, and in whoſe correction hitherto much error is committed; we ſhall ſet forth only here what Reaſon and Experience have taught us upon that ſubject.

Though the moſt famous Chymical Authors have preſcribed to make the Extract of Coloquint with Spirit of Wine, yet do I differ from them in judgement in this particular. Becauſe the Fruit of Coloquints is volatile, and hath a ſubtile and dangerous Salt in it ſelf, which cauſes ſtrange colliquations, and corrodes the

the Stomack and Guts, as it plainly appears, when this unsafe remedy hath caused any hyper-catharrs or over-purgings. Now the Spirit of Wine draws from the substance of the Coloquint, nothing else but the volatile and hurtful Salt, without touching the fixt part at all, which is that that truly purges the serosities, clammy substances and mucosities of the body: Moreover, the Spirit of Wine doth so subtilize and attenuate the Body of the Colloquint, that it carries it into the very Veins and Arteries, whence it attracts the best and purest part of the bloud. The Artist then must find out some way to correct and extract this purging Fruit, that it may yield its faculty very conducing to that end, without any hurt or danger. But it must be performed by a *Menstruum*, differing in nature from Spirit of Wine, that it may fix in some manner the malignant volatility, which predominates in this Fruit, and causes all its ill effects; wherefore the corrective and *Menstruum* of Coloquint, must of necessity be distilled Vinegar, provided, it be assisted and animated with a fixt penetrating and subtile Salt, which may act upon this volatile part, and alter its nature: this Salt is that of Tartar, according to *Sennertus* his preparation, as we will teach when we come to teach the Operations upon Tartar. For we regard very little here, the pretended correction of ancient and new Dispensatories, which rest only in the pulverisation and mixture of Aromatical Substances and Gum Dragant, to hinder the dangerous effects of Coloquint. The manner then of the true Extract is this.

How to prepare truly the Extract of Coloquints.

℞ Coloquint of the whitest and lightest you can find; separate the Seed contained in the pulp or flesh of the dryed Coloquint, because some are affraid of its violent operation: But, because it can proceed from no other cause, but its volatile sulphureous Salt, in which consists all the venomous and hurtful quality; and, that we teach here, how to fix and correct it; we shall also take the half of the Seed to the double of the Pulp to make our Extract; reduce all to gros Powder, which pour in the Matrass, and imbibe by little and little with good distilled Vinegar, impregnated with ℥ ß. of the prepared Tartar, according to *Sennertus* way

way for every pound of Vinegar, and when all is well soakt, pour over of the same Vinegar about four fingers height, and put it to digest in Ashes to a moderate heat the space of 8 dayes, agitating and stirring the Glass 3 or 4 times every day at the least; observing also, that your vessel be not filled above half, because this Fruit having been much contracted in the former drying of it, when it comes to resume its ordinary bulk in the *Menstruum*, it swelleth extraordinarily, and so might endanger the breaking of the Vessel, and loss of the substance and labour, when you should least think of it; having then laid it thus 8 dayes, strain and percolate the liquor, and put the Cake again in new digestion as before. The liquor you must only filtrate through a Linnen; and, if there remains any substance of the Body, joyn it again to the new digestion, and re-iterate three times the operation of straining, percolating, filtrating and digesting in embers, and, so shall you be sure to have extracted and corrected all what was good and bad in the Coloquint: Evaporate after this all your Digestions to a consistency of Extract; whereof keep one half, to exhibit with some good Mercurial Preparation in Venerous diseases; as also in Dropsies, and Arthritical Diseases, provided, your Patient be of a strong and robust constitution: The *dosis* is from grain ij. to ℈ ß. and a whole ℈. If it be exhibited without Mercury, you must prescribe after it a small draught of Malmsey, Spanish Wine, strong Mead, or some other good generous Wine; or give it in the same. But, if there be any Mercury incorporated with the Extract, you must prescribe a small Broth after, wherein you have mixt X grains of Coral, and as much of powdered Mace. But in case, you desire to give the Extract of Coloquint in a larger *dosis*, and without any danger of doing hurt; you must pursue and compleat the due preparation of this Extract: Put it then in a Matrass, and to each dragm of the same add ℈ i. of soluble Magistery of Coral, and circulate it one whole Moneth in a Matrass doubled, or Pellican, well luted; having first poured upon it Spirit of tartarized Wine to the eminency of four fingers; the circulation must be performed in a slow heat of *B. M.* And when it is ended, all must be poured in a Glass Cucurbite, adding to it the weight of ʒ i. of Nutmeg-Oyl made by expression, well mixt and united with ʒ ij. of Sugar in Powder; put this Cucurbite in *B. M.* and

draw

draw off the Spirit of Wine by distillation, and when no more Spirit ascends, encrease a little the fire, and evaporate all this mixture to the consistency of an Extract, which may be made in Pills: so shall you have a purging Extract perfectly corrected, and of safe use in all cases where Coloquint is wont to be recommended by Physical Authors: but chiefly, in all diseases of the Brain, Nerves, Joynts, and Lungs: and, therefore no scruple is to be made in exhibiting this Extract or Magistery so prepared to persons affected with either Apoplexy, Epilepsie, Vertigo's or swiming of the Head, but chiefly, in all accidents of Venerial diseases: The *dosis* is from vi. grains to ℈ i. and ʒ ß. in the Pap of a roasted Apple, or some pleasing Jelly: It might also be dissolved in Spanish Wine; but, it may contract an ungrateful bitterness, therefore some such vinous Liquors or Broths are rather to be taken after, according to the constitution of the Patient, and the nature of the disease. But, as those which apply themselves to Chymical Physick, and consequently, to the reading of Authors treating thereof, shall find in *Rullandus*, and several others, mention made of a Specifical Spirit against several obstinate diseases, to whom the name of *Spiritus vitæ aureus Rullandi* is attributed, and yet the description thereof is not to be found in the Author it self, and what others do deliver of it, is but conjectural; I have thought it necessary, to ease the mind of Artists upon this matter, to joyn my own opinion to that of others for their satisfaction. They that maintain this Spirit to be made out of Coloquint, say, that one of the conditions of it was to Purge without Vomit; and that, by consequence, this remedy could not proceed, but from this fruit, which is the only Vegetable purging with so small a *dosis*, and chiefly, being exalted by the help of Spirit of Wine: for, had this Medicine been both Purging and Vomiting at once, they would have all attributed its vertue to some Antimonial Preparation; but as it is not Emetik, the most judicious have believed, that it was Spirit of Wine impregnated by a long digestion and Circulation with the vertue of Trochisks Alhandal, which are nothing else but prepared Coloquint. Others do maintain the contrary, amongst whom *Franciscus Antonius*, a *London* Physitian, is none of the least considerable: for, they will have it to be a preparation of Potable Gold, or some other tincture extracted

from this noble metal; and alleadge for their reason, that Coloquint being a Vegetable cannot extend so far its vertue, as are those attributed by *Rullandus* to this his Preparation in the Centuries of his Observations; and, that none but a Mineral remedy, or Metallick one, can be capable of this Universality of action: and moreover, that it is not without reason or mystery, that this Author gives unto it the name of Golden Spirit of Life, or *Spiritus Vitæ de auratus*: seeming to be willing by this denomination, to insinuate what he would have concealed in his writings. Though it seems, that the reasons alleadged of both sides are valuable; yet I am forced to subscribe to the first opinion, which holds for Coloquint; because I am informed by several very ancient and creditable Physitians, who profess to have it from young *Rullandus*, that the Spirit which his Father used, and whereof he relates the Histories in his Centuries, was nothing else but the Tincture of Trochisks Alhandal: But, that the time, *Menstruum*, weight of the Trochisks, and their Preparation, was to be observed; and, as this remedy is full of many noble vertues, I have thought my self obliged to set it here, though it be not so well corrected as the last Extract, whereof we have given the description, since the acid and fixative Spirit hath not been used, but for the Preparation of Trochisks; and, that the Salt which did accompany it was an Alkali, which deads and blents the malignant action of the volatile Salt of Coloquint; it is nevertheless to be considered, that the *Menstruum* used in the preparation of the *Spiritus vitæ deauratus* is impregnated with the purest parts of this Salt Alkali, since it must be the Spirit of Wine alkalized, which shall extract the Trochisks Alhandal, and that by consequence it shall correct the malignity thereof, by the help of this Salt, and the long re-iterated digestion: which is thus performed.

The manner of Preparing the Spiritus vitæ aureus, Rullandi.

THe Golden Spirit of life of *Rullandus*. ℞ very white and light Coloquint, cleanse it exactly from all its seed, and shred and cut it as small as you can with Cizzars; then reduce it to Powder, having first anointed your Pestle with expressed Oyl of Nutmeg, or Oyl of Mastick drawn by distillation; fearce the Powder, and with

with good distilled Vinegar, reduce it to a Paste in a Mortar; then frame this Paste into Pills, or Trochisks, having first anointed your hands with the said Oyls; dry these Trochisks or Pellets in the shade, between two Papers, and reduce them to Powder again: and beat them the second time in a Mortar with the same *Menstruum* of Vinegar; frame your Pills or Trochisks, and dry them, and so re-iterate the third time; and, thus shall you have your *Trochisks Alhandal* fit for all uses and appositions, and much safer then those that are prepared after the old way with the mucilage of Gum-Dragant.

℞ ℥ i. of these Trochisks reduced to very subtile Powder, and put them in a circulatory Vessel, or a double Vessel (*de encontre*), pour upon it ℔ i. alkalized Spirit of Wine; stop exactly the Joynts of the Vessels, and expose your matter to digest and extract, to the reverberation of the Suns rays during the space of 15 dayes; this time ended, open the Vessel, and add ℥ ß. of these Trochisks in Powder, then stop it and put it again as long a time in digestion; open your Vessel again, and add for the third and last time ℥ ij. of the same Trochisks reduced to Powder, and continue the same digestion for 15 days more. This ended, strain or percolate the liquor, and squeez the remaining matter, then filtrate the Tincture by a Paper, and you shall have the Golden Spirit of Life of *Rullandus*, in its perfection, which you may make use of in such cases and diseases as you shall find related in his Centuries, or in all other diseases wherein we have already said, that the Extract was useful and conducing. The *dosis* is from ℥ i. to ℥ vi. and even to ℥ i. if it be used in liquor: but, if you draw back the Spirit of Wine, and reduce this Liquor to an Extract: the *dosis* then must be from vi. grains to xxiv.

We could have added to this Section of Fruits, several other Operations drawn from these Mixts, as the burning Spirit of Pears or Apples, and several other fruits of this nature: but, as no body is ignorant, that the juyces of these fruits will ferment of themselves; and, that Art contributes no more to it than the bare distillation, to draw the Spirit thereof: I have thought it unnecessary, to deliver particularly the manner of it here, since we shall furnish a sufficient example, when we come to teach of the Anatomy of Wine, in the Section of Juyces. It seems also, that we

should have been obliged, to declare in this Section, how the burning Spirits of Elder-Berries and Dane-wort, of black Cherries, Straw-berries, Raspeses, Goos-berries, and other like fruits should be made: But, as we reserve the example of their fermentations, where we shall speak of Juniper-berries, we refer to deliver our selves here fully to the Artist there. There is only a warning to be given concerning these fruits, that the Juniper-berries are to be distilled before fermentation, because they have in themselves great store of ætherial Oyl, which must be extracted before they ferment; but, that as these other fruits are only juicy and without any portion of Oyl, unless it be that which is concentrated in their Seed, so is it not necessary to distil them before fermentation.

Sect. V.

Of Seeds, or Berries and their Seeds.

WE have already given a general Idea of the Composition of Seeds and their difference, when we did treat of Vegetables in general; we have also insinuated, as it were, the manner of distilling them, to extract their vertue; but, as we know by our own experience, that these general Maxims do not enough design the work; we must particularise the Operations, according to the division we shall make of this universal genus in four other subalternate kinds, which will be, The insipid and inodorous Seeds; the odoriferous and aromatical; the inodorous, but of a subtile and biting taste; and finally, those which have scarse any smell, unless they be rub'd or squeez'd, and are endowed with a Honey-taste mixt with some Balsamick and Aromatical savour. For the first, we shall take the Wheat, Rye, and Barley, to make their Anatomy, and Extract out of them the true *Aqua-vitæ*: For the second, we shall take the Seeds of Anise, Fennel, and Parsley, from whom we shall extract a spirituous Water, and ætherial Oyl: For the third, we will take the Mustard-seed, or Garden-Cresses, which we put into fermentation to distil thereof a volatile

tile Spirit, and which we will distil also without addition by Retort, to extract the volatile Salt, the gross Oyl, and the acid biting and mercurial Spirit: For the fourth, we will take Juniperberries, whereof we will prepare several differing remedies, and very useful to Physick and Pharmacy.

I doubt not, but many will think it to be a very common theam to insert here the Anatomy of Wheat, or Corn, Rye, and Barley; because as these seeds are very common, it would seem I should bring in some more rare Subjects for my purpose: but let them seriously consider, and make a due reflexion upon their daily food, that they should not be displeased to be taught, what portion of Spirit of life is contained in the Bread they eat, and without the dayly use of which they cannot be; and, though the vain babling of some, who pretending much to Philosophy, and thinking to have searcht Nature throughly, make a great noise, and seem to be sufficiently satisfied, with saying, That digestion is performed by the proper heat of the Stomack; without showing in what manner this heat doth act upon the matters which it is to digest: that, besides, this digestion produces a chyle as white as any Cream, without explaining at all by what means it is performed, and, that they infatuate by these empty words, the minds of those which apply themselves to common Physick and its parts: It concerns our duty and publick safety, to give to understand, that all these defects do proceed only from the ignorance of Chymistry, which would have taught them as we are going to show; That the fermentation artificially used in the Corn, is the same which the Stomack uses in the Ventricle: and consequently, the Chymical Artist may make a real and true demonstration thereof, without any need of opening or anatomizing any living Animal to be surer of it. For we will give to understand, by the action of fermentation and the Spirit we shall extract thereof, that it is in vain to use so many words as there are dayly made about heat and cold, and the first and second qualities of Mixts; which are properly Chimera's filling the mind with unnecessary terms, and dulling our natural light, discouraging many from the earnest search of Physical truths, to acquire thereby the knowledge of several noble remedies, which would be profitable to the Members of Civil Society: This truth was illustrated

two years ago in the Royal Garden eſtabliſhed for the culture of Medicinal Plants, and the Theorical Lectures of Chymiſtry, and demonſtration of its Operations, which I then was appointed to make by order of the Kings firſt Phyſitian *M. Vallot*: for, when I came to ſpeak of fermentation and its wonderful effects, and was about to prove the truth of my reaſonings by an operation which I made upon Seeds,: the moſt part of the Auditors, which had been prepoſſeſs'd with a doctrine relying only upon words, but void of effects, went away, as if what I ſaid then, and did demonſtrate, had been ſome trivial and too familiar a buſineſs: though none of them could underſtand or apprehend this manner of Philoſophy, neither conceive the great myſteries which Nature hath been pleaſed to reveal to us, when ſhe made obvious to our eyes natural fermentations, which ought to be our true model, to attain to the perfection of artificial ones; as we will make appear in the ſequel.

Of Ferment and its Action, and how the Fermentation of Corn is to be performed; as alſo of Rye and Barly, to extract the burning Spirit thereof.

ALthough the art of baking Bread, and brewing Beer, ſeems for the preſent vile and abject; yet nevertheleſs, there be many learned perſons, and even of thoſe which will be accounted ſearchers of Nature, and vers't in her myſteries, that feed upon both, without ever having made a judicious reflection, why theſe aliments do nouriſh and ſuſtain them, much leſs, what portion of them is converted into their ſubſtance for the preſerving of their life. Though ſuch a ſtudy ſhould be the chief imployment of thoſe that undertake to treat of Nature and its Products: and, as we have ſo often ſaid, that Chymiſtry only can introduce Man into Natures Cloſet and Sanctuary, there to diſcover her naked and hidden beauty; ſo will we endeavour to clear this truth, and explain it more eſſentially here than any where elſe. By the deſcription we intend to make of the Introduction of the Leven and Ferment in thoſe ſubſtances by which we are nouriſhed, which doth evidence and manifeſt unto us by its action, what portion of vital ſpirituous and celeſtial ſubſtance there is in the matters

matters which are imployed dayly by us for the preservation of our life. Now we must of necessity have recourse to the inventor of Leven, if we pretend to find its original any where else, than in the hand of God himself, and the nature of Light and Spirits: since the action of ferment is all divine; it is properly that fire of Heaven which ancient Poets have adumbrated in the theft of *Prometheus*; and which since hath been instrumental in the propagation of all Arts, since it is the only sharpener of Spirits, which illuminates and guides them to the noblest knowledge. For if any do attribute the knowledge of Leven to Tradition, we must return to the first Inventor which can be no body else, but our first Parent, who had his knowledge by infusion; and if we attribute it to Chance, it must of necessity follow, that the first discoverer should have found by accident some fermented matter which should have made him conceive, that the substance acting in this fermented body, did open and dilatate it, and introduce in it several qualities by the alteration caused by the ferment, which occasioned him to take notice of some new productions, and as a kind of new generation in the fermented subject. Now it is not possible for any man to have all these considerations, and make these reflexions, without a previous tincture, or acquired and adopted knowledge of natural Philosophy. And so by the help of either of these two guides, he must have extricated by the help of the External Senses, that which his Internal had preconceived, or, what is yet truer, his smell and taste must have invited him to meditate thereupon, since there is no fermentation, without some spirituous subtile and penetrative odour, which suggests immediately to our reason this conclusion, that such an effect cannot be produced, but by a celestial agent, and of an igneous nature; moreover, the taste doth meet with a certain biting acidity, which is neither harsh nor corrosive: but, to the contrary, pleasant and evincing clearly that there is some very subtile Spirit hidden therein: which must of necessity have obliged him who found out the first use of Leven, to make his Experiment of this fermented matter, with the mixture of some other that should naturally incline to fermentation, and so came to discover the effect thereof, which since hath spread and communicated it self to Posterity. Nevertheless, which way soever men came first

to

to the knowledge of ferment and its action; we must refer the praise and glory of the invention to the Author of Nature, and the Creator of all natural productions; since those that have applyed themselves to seek its original, and the way of its operation have manifestly been convinced, that it had a source and original above Nature it self, since all what the sublimest wits have ever been capable to say of it, hath never been sufficient to express its Essence; they contenting themselves only to say, That as God and his Attributes are the same thing, of which the humane mind can only conceive the existency, and whereof also we can affirm nothing but by Negatives: so likewise, the deepest Philosophers acknowledge Ferment and its action: but, they could never come to give an exact definition of what it is, and the manner of its action. For we find in holy Writ, that *Moses* hath imployed no other term but Gods *fiat*, let the thing be, to express the mind and will of God, which made, as it were, created things issue from Himself, as very well hath noted one of the most learned Physitians of our age, when he he saith, *That God in the work of Creation, did in a manner open and explicate Himself, as in a Book, in which he hath left his Picture drawn in most beautiful and visible Characters; as if God had lodg'd and placed himself amongst the Beeings or created Substances; that they may the better partake of his goodness.* Now as the intention of the Creation was to cause a duration and perpetuity of created substances, by a long sequel of generations; God placed the ferment or leven in the confused mass of the Chaos, to introduce in it by his Omnipotency the Seeds of all sublunary things, whereof he had the Idea's in himself from all Eternity. By which we know Ferment to be nothing else, but a spark of celestial and divine light, harbouring in all individual Substances, which nevertheless doth not appear to the Internal Senses, much less to the External, and yet notwithstanding doth work perpetually, and reduce all things from power into act, to convey them to the end of their natural predestination. We have no more at present to say upon this matter, but, that our ignorance causes here admiration; and, that we are forced to depart from contemplation, and stoop to action, according to the measure of knowledge which God hath permitted us, that is, to imitate, though a far off, and at a great

great distance the mysteries of natural fermentations by artificial ones.

To attain then to the perfect way of this noble operation, you must prepare a portion of the Seed which you are to ferment, that it may entirely be disposed to receive the ferment; and, be capable besides, to introduce it in a great quantity of the like unprepared Seed, which is thus performed. Chuse the time of the Vernal Equinox for this preparation; because, then Nature is in a kind of motion, to make all things bud and germinate in the renewing of the year: wherefore she makes use to this end of all the astrations or influences of the Stars; which by means of the vernal Rain, impregnated with a very subtile and efficacious Spirit and Salt, which renders it penetrative and permeable, more than at any other time of the year, doth fœcundate the Earth. Take then lb L. of Wheat, Rye, or Barley, and put it to soak in a woodden Tub in Rain-water gathered in the Vernal Equinox; or, if the season will not afford it, in good River-water; let there be no more water then what is sufficient to soak well your Grain, and leave it so during 24 hours, then let the water run away, by a hole which is to be under the Tub; after which, take away your Grain from the Tub, and put it in an aired place, but not exposed to winds; make an heap thereof of the height of one foot and an half; cover it with a Linnen cloth first, and a Woollen one thereupon, and so let it lye together and softly contract a heat, until you find that the Grain hath begun to germinate, or bud and shoot out a small filament white and very thin, as if it were white Silk; then uncover your grain, because, that filament witnesses that the heat hath already sufficiently excited the internal and fermentative Spirit of the Grain, to reduce it from power into act, by the means of that spirituous substance which it had drawn from the water, that had rowsed and excited this Internal Spirit, which before did lye Dormant, and concentrated in it self: for, if you did let it lye longer covered, it would absolutely ferment, and turn to putrefaction, which would spoil all the inmost part of the heap, and convert it into a confuse and shapeless mass, which would degenerate into Earth, and become as a ground and place of nourishment to the other part of the Grain in the Superficies; and in a short time would grow and be conver-

ted into grass, by reason of the excess and abundance of water, and the precipitation of the heat. Now to prevent all these accidents, you must spread your Malt or germinated Corn in a well aired place, and permeable to the wind, it must not be higher than half a fingers bredth, that it should the sooner be dryed; so shall the air and wind dissipate the superfluous humidity, and concentrate this vital and spermatick power, which otherwayes would have vanisht away, and been lost and dissipated by the excess of heat and moisture. When you begin to perceive the grain to grow dry in the superficies, stir it often, to hasten the exsiccation of it; and, that the Spirit that was already in action, may recoil and concentrate it self again in its own body; which doth not cease, nevertheless, to retain a disposition more inclinable to the production of its own Spirit; than all other Grain which hath not been so prepared. And as I have said, that the Grain had suckt the spiritual and subtile part of the water, which was as its own preservative Salt; we must insist a little more in explicating this mystery for the instruction, and in the behalf, of such as are not yet acquainted with the noble actions of Nature, and the wayes she uses in her operations: Besides, that it will bring some light to what we have already said above, of Ferment and its action. To conceive this the better, it must be observed, that Nature hath placed in every Individual Substance a kind of magnetism, which causes it with a quick and sudden earnestness, to attract whatsoever is analogous to its Internal Spirit, from the things with which it is joyned. Now this Internal Spirit is shut up, as invisible, in the visible body of the sulphureous volatile Salt contained in the kernel or gross body of the Seed, which, to speak properly, is the soul and life of the thing: so that, when this Grain soaks in the Vernal Rain-water impregnated with the invisible Seeds of all things, it attracts potently and greedily, what is most fitting and analogous to advance it self to that perfection to which it was destinated by Nature. And, when it is filled with it, it begins to conceive a heat in it self, and to ferment, whereby to produce the bud or germen, which is the principal of all vegetation: which would act and extend its power further, if the Artist did not check and draw back this stirred power, which, unless hindred, would pass into action. But the cleerest

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and most natural proof we can bring, that the Grain hath attracted the saline and spirituous portion of the water, is, that this water in a very short time will turn to corruption, and doth contract a putrescency and ill smell above all others, which doth so offend and irritate the Brain and the Organs of Respiration, that it will almost choak those that come neer unto it. They that in *March* and *September* use to go by the doors of Brewing-houses, may best give testimony to this truth: for, those two seasons being the time they prepare greater store of Malt for brewing of their Beer, and the waters lying still in their houses and the street, they produce a most abominable and nauseous smell. And they that have wrought with Equinoxial water, and preserved full Casks thereof, know that it never corrupts, and can keep without corruption whole years, which is not so with the Rain-water of other seasons of the year. By which it evidently appears, that this long preservation cannot proceed, but from the saline Spirit, which the Stars had as it were darted with their influences into this water; and that, as the Corn hath attracted it by its magnetism to help germination; so the water being deprived thereof, could not preserve it self without alteration, corruption, and putrefaction.

Take ℔ xij. ß. of this Grain so germinated, or Malt, being dryed, and put it to ℔ xxx vij. ß. of Wheat, Rye, or Barley, severally, or all the three kinds together; and let it be grosly grounded, as Brewers do their Malt for Beer: Having thus your Meal prepared, put half of it in a Cask, newly emptied from Wine, and as much in another; pour upon it half boyling water with Buckets, and stir incessantly your Meal with a woodden Shovel, or any like Instrument, and a four-pinned woodden Fork, to moisten throughly your Meal, and make as it were a dissolution of the internal substance of the Grain; and, when you have put 8 or 10 Buckets of scalding water in the degree afore-mentioned, and that the Meal is well mixt and allay'd, add some cold water, until all be reduced to so moderate a heat, that the hand may be suffered therein without hurt or inconveniency: that done, proportion to every Tun of Liquor half a Bucket full of Yest of Beer, which shall be unto it instead of a Leven or Ferment; because this Yest is nothing else but fermented Flower, which the action of fermentative

Spirit expels out of the Cask as unneceſſary, ſuperfluous and full of feculency, having preſerved yet in it ſelf the fermenting power, which it is capable to introduce in the matter which is to be fermented. Having diligently and exactly agitated and mixt the Leven with the matter, you muſt cover the Tuns with woodden covers, & put on the top a Linnen four-folded cloth, and thereupon a Rugg, and look from time to time if the fermentation begins, which ſhall be noted by the riſing of the groſſeſt part of the Corn above the Liquor, and a ſwelling round about in the figure of an Hemiſphery: Things being thus prepared, take care the matter ſhould not run over, and make too quick an ebullition, which is a token of too much heat or too much leven; and, in ſuch caſe, take away two Buckets full of it, or pour upon it a Bucket of cold water, and then let it work of it ſelf. That which is moſt worthy of a Phyſical Philoſophers conſideration, and more to be admired in the working of this fermentation, is, that when that round ſwelling in the ſhape of an hemiſphery is formed; and, that the Ferment hath raiſed the groſs body of the Grain to the ſuperficies, then appears the wiſe Providence of the Great Maſter of Fermentations; for it ſerves as a Bulwark and defence againſt the eruption of Spirits, which act upon the matter from the center to the circumference, and play under this incruſtation, until they have diſſolved and volatilized all the parts of the body, upon which they act, except the uppermoſt skin, which is about this incruſtation, which cleaves by intervals, and diſcovers under it a Cream as white as Snow, that dilatates it ſelf and frames bubbles: which breaking, affects the Noſtrils with a ſpirituous penetrating vapour, ſubtile and biting, that tickles the Noſe, and would in a ſhort time ſtupifie and inebriate; if you held your Noſe over the Veſſel, juſt as the volatile and narcotick vapour of Wine would do, when it begins to ferment in the Veſſel. Now as we have engaged by the Fermentation we would deſcribe, to ſhow the nature of that which is performed in mans ſtomack; for a greater evidence of this truth, we will make a parallel betwixt both: for, as it is evident, that purity is ſeparated from impurity; and that the ſubſtances which did ſeem to be heterogeneous become homogeneous by the action of the Ferment, which diſſolves the ſubſtance of the Grain, and mixes it with the water,

to

to alter its taste and odour by communicating the Spirit unto it; the same is performed in the Ventricle, where all whatsoever we swallow of a liquid and solid substance, doth mix and coalesce together to become one mass of the same nature, though it should seem that what we have taken in, should be of very different kinds and qualities, as hard and soft, salt and sweet, harsh and and spiced, fat and Oyly, the acidity of the Stomack, and whatsoever else of several substances meet there: all that, I say, makes an uniform chyle, by the help of the volatile Spirit, lurking in the bottom of the Stomack, and of an acid nature, as is also aliment of Leven. But, that which doth yet more illustrate this conformity and likeness of fermentation, is, the smell, which by eructations or belchings is brought some few hours after meals to the mouth and nostrils, which do represent the taste and smell of what hath been eaten and drunk; and chiefly, after drinking new Wine or new Beer, the belchings in their smell yield by their exhalation, a fermentative and tickling Spirit, like unto that we have mentioned above, which cannot better be apprehended, then by comparing those bubbles, which are formed in the purest part of the chyle of our fermentation of Grain, which send forth this subtile and tickling Spirit that doth invade the Nostrils; for the same happens in the Stomack, and when the eruption of these bubbles is made, it forces the action of belching, and then appears to the sense the taste and smell of what predominates in the chyle. All what we have now said, doth show how much it doth import, that as a Physitian should be well skilled in the good fermentation and its effects, since from her doth depend the preservation of our health: so must he also be well verst in the contrary disposition of it, which is for the most part the occasional internal cause of all diseases; a truth confirmed by *Hippocrates* himself, when in his Aphorisms he saith, *That the sowre or acid belchings of sick persons recovering, are of a good presage*; which signifies no more in substance, but, that the Stomack begins to recover its strength, and the digestion to be well performed, because the fermentative natural acid hath recovered the upper hand; whereby it may safely be concluded, and with great reason, that all things will go better and better.

But we return to our Fermentation, which, during this digreſſion, we left in its progreſs; the knowledge whereof is of no ſmal importance. We ſay then, that when the Artiſt ſees, that wha was lifted up by the action of the Spirit, is fallen again to the bottom of the Veſſel; and knows by the taſte, that the ſwiming liquor on the top hath acquired a taſte between ſweet, acid, and pricking; and moreover, that its ſmell evidences the light to have contracted a vinous and ſpirituous odour, which doth recreate the Senſes, is of a ſubtile nature, and happens for the moſt part towards the fourth or fifth day; then muſt you anoint the bottom of the Veſſel to be uſed in the diſtillation of hot Spirits, with a piece of Bacon, to hinder the matter in the bottom to cleave unto it, and contract an aduſt taſte or empyreumatical ſmell noxious to the Spirit; after this, agitate your fermentation with a woodden Spatula, to cauſe the ſubſtance in the bottom equally to mix with the liquor, whereof your Veſſel muſt be filled, till it reach half foot neer to the top; and continually ſtir it, until it be ſufficiently heated by the fire, to raiſe up all the body; then without danger may you cloſe up the Veſſel with its Moors-head or Still, luting the Joynts and quickning the fire, until you can no longer endure your hand to put upon the Still-head without burning; then you muſt exactly cloſe the door of the Furnace and its Regiſters with great care and precaution, and ſo patiently expect until the Spirits begin to aſcend in a vapour into the Worm or Pipe, where they are condenſated in a ſpirituous burning liquor, which falls by drops into the Recipient. You muſt entertain the fire in that degree, until the liquor coming forth be totally inſipid; then open the Veſſel, and draw out the matter to fill it with new; and ſo continue till you have diſtilled all what was fermented. That done, put into the Veſſel again all the diſtilled liquor, and throw into it two pound of new and warm white loaf of Bread, or toaſt it in want of new; becauſe the Bread attracts to it ſelf all what may be of ill ſavour in the firſt diſtillation; then cover the Veſſel, and give it a regular fire, according to the beſt judgement, until the Spirit begins to diſtil, as we have already taught; and ſo continue until the phlegm aſcends, which may eaſily be perceived by the taſte. So ſhall you find after this rectification an *Aqua vitæ* or hot

Spirit,

Spirit, of very good taste and odour, and little inferiour to that which is extracted from Wine, though the Grain of it self be flat and without taste, which illustrates so much the better the wonderful effects of Art and Nature, and verifies the saying of that learned *Roman* Philosopher *Morienus*, *Quod est occultum fiat manifestum, &c. è contra*: which can never be done but by the help of ferment which penetrates into the most inward parts of Mixts, and discovers unto us there, that which our Intellect or Senses should never have found otherwise.

They that will subtilize this Spirit by a third distillation, may do it, and add upon the whole a Bucket full of Wine-lees: then will it become so subtile, and so delicate, that the most skilful may be deceived in their differencing it from Spirit of Wine, either by the taste or smell. It may then be applied to all such operations, wherein *Aqua vitæ*, and Spirit of Wine are necessary; which will be very useful to those that apply themselves to Chymical practice, in such places where there are no Vineyards, or *Aqua vitæ* is at a dear rate. I do nevertheless advise, to keep the Spirit of Wine in Chymical operations, because it is ever more pleasant, subtile, and penetrative: but, when you are destitute of it, you may lawfully substitute this Spirit, in the composition of all such remedies, where *Aqua vitæ* is necessary. We shall not mention here the vertues of this Spirit; because, besides that it is commonly known for a great warmer, restorer, and strengthener; we purpose to speak thereof when we shall treat of the Spirit of Wine. We must nevertheless add something more in the behalf of curious Artists, which have a mind to make this Spirit, and yet live in such Countreys where they know not what belongs to the making of Beer, and by consequence have no Ferment or Yest, which proceeds from that liquor to raise the fermentation of Meal. Now there is no place in the world where Bread is not made, and consequently, where there is not Leven or Ferment, wherewith the Dow is raised in making of the Bread; wherefore let them take ℔ ß. of ordinary Leven, which shall be mixt with ℔ j. of Meal in xv. or xx ℔. of luke-warm water; then let the Vessel containing all this be covered, and the fermentation of this Liquor be patiently expected, and when you see it begin, and the Meal to rise up on the top, and the Liquor to swell,

then

then introduce this Liquor in any matter which is to be fermented, and you shall perceive the effects as we have already spoken of to follow, but not so quickly as if Beer-yest had been made use of.

We have but one thing more to add, which is, that to stir up the fermentation of Meal or Grains, you must put some of that which hath already been prepared: but you must know, that the Artist shall not extract so much Spirit, that it shall not be so subtile nor so delicate, nor have so kind a taste: and moreover, that which is more important, is, that fermentations shall not succeed so well, as when this Grain is joyned to the other, which makes it fitter for fermentation, and that when it hath duly been so performed, all the distillations are much more successful, because this Grain, which hath been opened by its preparation rises up easily, and draws up to, and with it self, that which hath not been prepared. And if I am asked, why I have not prescribed prepared pure Grain to be made use of; I shall answer, that it would be unfit, because the Ferment would too soon volatilize the same, and so the most subtile part of the Spirit should vanish and lose it self before it could be distilled: and moreover, that the matter would too soon ascend the Still-head, by its quick ebullition, and come forth in body and not in spirituous vapour, as it often happens with such as are not yet well verst and experimented in the distillation of fermented matters.

The Preparation of the Spirituous Water and Ætherial Oyl of Aniseeds, Fennel, Parsley, and the like.

YOu must take one of these Seeds, the freshest you can procure it, and put thereof 4.6. or 8. ℔. grosly powdered in your Stillatory Vessel according to its bigness and the quantity of water which it may contain, and pour upon it River or Rain-water, till it comes to ⅓ foot near the brim of the Vessel: which being shut, administer a graduate fire, till the drops begin to fall into the Recipient; then stop your Furnace and continue your distillation, until the water comes away without any smell, and no Oyly substance be seen to swim on the top; then cease the fire

and

and open your Vessel, and drawing the matter wrought upon, substitute new whilest the Furnace is burning: but you must have before separated the Oyl from the Water, to pour it afresh upon the new Seed; for, by this way shall you procure much more Oyl in the second then in the first distillation, and as these Seeds are commonly rather distilled for their Oyls sake then their water, this part must therefore also be more heeded. The Oyl must be separated with Cotton, as you shall be directed in the figure described by the *Vesica* or distilling Vessel for Spirits in the Chapter of Vessels. And if the Oyl should not be flowing, but congealed, as it happens to the Oyl of Anise, you must strain the Water through a clean Linnen, and the Oyl will remain above it, as we have said above, when we spoke of the Oyl of Roses. It must only be noted, in the way, that some Authors will have these Seeds to be digested, before they come to be distilled, pretending that they will yield much more Oyl to the Artist, because the body of the Seed will be more opened: but they do not observe that these Seeds do abound in volatile Salt, which is of a median nature, so that the Water cannot attract it to it self, by the length of digestion; which will happen otherwise, if the distillation be begun immediately after the Water and Seed be mixed together: It is true, that if digestion doth precede, that the Water thereof will be all spirituous, and of much more efficacy then without it: but it will yield much more Oyl according to the rule of our prescription. We shall say nothing of the vertue of these Oyls and Essences so improperly called, no more than of their *dosis*; for so many others have fully treated of this Subject, that it would prove but a tedious repetition.

The Preparation of Seeds of Garden Cresses, Mustard, and other of the like Nature.

ALthough these Seeds have in themselves great store of most subtile, volatile, and most penetrating Salt, as may be concluded from their taste; yet fermentation doth not cause them to yield a hot burning Spirit, as many other Vegetables: but it opens them, and rarifies nevertheless in such a manner, that all the Salt and Oyl which these Seeds have in themselves, and

wherein all their vertue is placed, ascends in Vapours and Spirits, which being condensed into Liquor, fall again into the Recipient, with so subtile and penetrative a smell, that it invades the Eyes and Nostrils, and passes into all the conduits of the Brain, with as much quickness as the most subtile volatile Spirit of Urin might do. It is not necessary we should repeat here, the process of Fermentation and Distillation; it will only suffice, to give the necessary precautions for the work, because these Seeds are of a different nature from the other, by reason of the subtility of their volatile Salt. There must then a special care be had, that the Vessel wherein the fermentation is performed, be not above half full, that the matter may not rise too high in the action of the Ferment; the same precaution must be used in the Stillatory Vessel not to fill it above half, to lute it exactly, and regulate the fire with a clear judgement, and an orderly assiduity, otherwise all would ascend in substance in the Still-head. The Spirits may be rectified in *B. M.* if they are desired more purified and more subtile than by the *Vesica* or ordinary Stillatory; they are true diuretical and aperitive remedies; above all, to remove the Obstructions of the Spleen: they are moreover true specificks against the Scurvy: the *dosis* and vertue whereof hath been specified above, when we spoke of Antiscorbutical Plants, whither we refer the Artist for his better information.

But as the Oyls and Spirits of these Seeds may be extracted without addition; and that more-over it is necessary to distil them in this manner for external uses: We say the right way of operating to be this: fill two parts of a Glass Retort with any one of these Seeds, but chiefly of Mustard, by reason of the singular vertues of its Oyl: then place it in a Furnace upon an Earthen cover turned upside down, filled with Sand, which will be unto it instead of a Lute; then cover the Furnace, and fit a large Receiver to the Neck of the Retort, and lute it with quick Lime and whites of Eggs, and give it a regulate fire, until the drops begin to fall, keeping it in that tenor until the Oyl begins to appear; then encrease the fire by little and little, and urge it until the Receiver, which was dark with fumes, begins to clear again of it self, which is a manifest sign, that the action of the fire hath driven into the Recipient all the vapourable substance contained

in the Seed, and so consequently that no more is to be expected. This operation is commonly ended in the space of 12 hours. All the Vessels being cold, take the Receiver off from the Retort, and separate the Substances that will be found therein, which you may rectifie if you will: but as they are only intended for outward applications, it will not be very necessary: but if you intend to rectifie them, leave the Spirit and Oyl together, and infuse them in a low Cucurbite, which being covered with its Head, put it in ashes, and give it a graduate fire, until the volatile Salt and Spirit begin to appear in the Still-head; then keep the fire only in an equal tenor, until the Phlegm begins to ascend, which the taste will discover: for the volatile Spirit which is actuated by the same Salt, is extraordinary biting, subtile, and penetrating, and the Phlegm hath only an acid and almost insipid taste: this done, change the Recipient, and strengthen the fire to make the Oyl ascend, and so continue till nothing more comes away; then separate the Oyl from the Phlegm, put the distilled and rectified matters in Glass Vials, exactly stopt by reason of the subtilty of this Spirit and its volatile Salt. The Spirit doth wonders being applyed upon starved Limbs, well fermented with Spirit of Wine, and fresh stale; then make a liniment with *Unguentum Martiatum*, Mans-fat, and the Oyl of Mustard-seed, applyed upon it; which will raise up again natural heat in the part, and attract the Spirits of other parts more remote; and the itchings and vellications of the skin fore-running the total recovery, being felt by the Patient, will be a sufficient testimony thereof: thence it may be concluded, that it will be of a Soveraign efficacy, in all benummings of Sinews, their shrinking loosenes, which are the occasion of Palsie, or Contraction of Limbs; provided the Spirit of this Seed made by fermentation be exhibited, and that the Patient be made to sweat after. The Oyl unrectified, does mundifie, cleanses and fleshes again the most filthy and malignant ulcers, dissolves the knots and hardnesses of Gowt and venereous diseases; but you must at the same time make use, and even a little before, of the internal remedies, such as we shall teach hereafter to extract out of Mercury and Antimony.

We shall not speak here of the *Vses*, nor excellent vertues of the Spirit extracted by fermentation, from these kinds of Seeds;

becauſe we have already ſufficiently inſtructed the Artiſt of it, when we ſpoke of the vertue and *doſis* of the Plant called *Cochlearia*: I will only add this, that where this Plant ſhall fail, you may ſubſtitute the Spirit of the Seed of Garden Creſſes, which will produce the ſame effects, and be uſeful in the ſame diſeaſes: but it would be better nevertheleſs, to diſtil the Plant whole, when it is only between Flower and Seed.

The manner of Extracting from Juniper-berries, all the good and vertue contained in them, for the uſe of Chymical Pharmacy.

ALthough this Plant be common, it deſerves nevertheleſs no common or mean Eulogies, by reaſon of thoſe excellent remedies it affords to Phyſitians by the help and induſtry of Chymiſts: for whoſoever will conſider that ſhrub with a diſquiſitive and Philoſophical Eye, ſhall be forced to acknowledge, that it contains ſome extraordinary vertue, both becauſe it doth reſiſt the injury of Winter, and all its ſtorms; and by reaſon of the length of time which Nature doth beſtow in bringing its Berries to maturation; whence we are neceſſarily perſwaded, that there is in this ſhrub ſome intrinſecal Balſom, which doth maintain and preſerve the ſame, and yet hardly and with difficulty ſhews it ſelf in the fruit; ſince two re-iterated viſits of the Sun are neceſſary, and the maturation of two years, before the Juniper-berry be fit to be gathered with all its requiſite perfections. We ſhall then Anatomize all the parts which this admirable Plant doth furniſh us withall; being thereunto invited by thoſe excellent remedies it doth adminiſter unto us; although we be bound to ſpeak alſo of other parts then the Seed, which is the proper ſubject of this Section. We ſhall then, firſt of all, ſpeak of the Wood, which doth yield an acid Spirit, an Oyl and a Salt. Secondly, we ſhall ſpeak of its Berries, which before fermentation do yield a ſpirituous Water, an ætherial Oyl, and a cordial and alexiterial Extract; and after fermentation, a hot burning Spirit, a purging and diuretical Extract, and then we will teach the Preparation of the true Tincture and Elixir of the Berry, to conclude finally by the Gum; whereof an Oyl for the Sinews, and an anodine Balſom is extracted.

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The Juniper-wood must be gathered with its leaves or pricky excrescence, and its Berries, whether ripe or not: and shred or cut in small pieces, so as they may be put in a capacious earthen Retort; which being placed in a close Reverberatory Furnace, the Recipient being fitted with all requisite and necessary precautions, a gradual fire must be given to it, and so continued until it hath driven out all the Oyl or Spirit contained in the Wood, the true token whereof is, when the Receiver doth grow clear of its self; the time of this operation will not last above 12. or 15. hours at most. The Vessels being cooled, separate the Oyl from the Spirit; the Spirit will remain reddish, because it is impregnated with the tincture of the Oyl communicated to the same by the volatile Salt of the Plant: if you will rectifie it in Sands or Ashes, you shall have a very pure acid Spirit, provoking Sweat, and diuretical: The *dosis* is from ℈ i. to ʒ i. in Wine, or some convenient decoction; it hath as much, if not more vertue then the Spirit of *Guaiacum*, for venerial diseases: but above all things, it is singular in the bitings of Vipers, Serpents, or other venomous creatures, if it be given in the same *dosis*, and the wound be washed with it, and with new stale; it is not requisite to rectifie the Oyl extracted from the Wood, because it is not inwardly used. It is exceeding good to hinder the accidents of cutting of Sinews, and bitings of any creatures when provoked, because the volatile Salt contained in it, doth penetrate to the deepest part of the wounds, where it corrects the malignant impression of venom, and hinders its progress and further spreading: But the Patient must take at the same time Spirit of Juniper-wood, in warm Wine, with xx grains of scraped Nutmeg. The Oyl moreover, is singular to appease the pain of rotten Teeth: it equals the vertue of *Guaiacum* for the cure of old Ulcers; chiefly if they be seated near the Joynts where many sinews do concentrate, many gristles, and cartilages, which do feed for the most part Ulcers with their jelley, slime, and viscous superfluous moisture hindering consolidation: this Oyl doth digest and consume all these substances against Nature, and restores a good ground, which doth afterward cicatrize and fill up the Ulcer, and so brings it to a perfect cure.

Having wrought upon the Wood, let us go on upon the Fruit, which are the Berries containing the Seeds in a glutinous and viscous body, covered and wrapt up in a thin outward skin black and smooth; when the Berry hath attained its perfect ripeness, which comes to pass the second year after its production, about the midst of *September*, which is the true time of gathering; the Sun being in the sign of *Virgo*: For anticipating that time the Berry would not yet prove sufficiently ripe, neither have in it self, that sweet bitterness, and Balsamical Honey, which contains its volatile Salt, and by consequence, its Spirit; when you have a sufficient quantity of these Berries so conditionated; *viz.* very black and smooth, odoriferous, if they be rub'd and crusht, and that the Oyl remains in the nail, and strikes the Nostril in the bruising thereof, having their internal substance of the consistency of Honey and viscous, with small grains within the flesh, which are the Seed thereof; and when you masticate it, tasting at first with a sweet and balsamick taste, which by degrees degenerates into no unpleasant bitterness. It will seem perhaps, that we have enlarged our selves too much upon the qualities which this fruit must have; but as the vertue of the prepared substance depends on the goodness and qualities thereof, so was it necessary to declare it at large, that the Artist may not lose both time and matter in vain, as it is too usual a thing to do.

℞ ℔ viij. of Juniper-berries thus qualified, as we have said; beat them in a brazen Mortar, with a great woodden Pestle, until you find them to be all masht; then put them in a Still Body, and pour upon them either Rain or River-water, until it comes ¾ foot near the brim; then cover and lute it, and give it fire according to the Rules of Art and good Judgement, and so distil a spirituous Water & ætherial Oyl, which will swim above: observing still that you must not take off your eye from the Recipient, when the Water and Oyl begin to ascend into the Neck of the Recipient: for as this distillation is only intended to extract the Oyl, you might lose it all by your own fault; because if the Water did over-power, all the Oyl would vanish: and to prevent this loss, you must watch carefully to substitute another Receiver when the Oyl doth begin to reach within three or four fingers of the Orifice of the first Recipient: and so continue your distillation, until

till no more Oyl appears on the Water, when you receive or put for trial your Water in a Spoon. This operation ought to be continued in this manner, until you have made an end of all your Berries, re-affunding still your distilled Water upon each distillation, after you have separated the Oyl with a Cotton. But if you will make the simple Extract, the Honey or Theriack of the Germans with these Berries, you must strain and percolate some part of these distillations being warmed, and slowly evaporate them to the consistency of a thick Syrup, or liquid Extract. If it be objected, That the Oyl is already separated from it, and that consequently, the vertue of it will be abated, the answer is easie: for you are to consider, that the Oyl would be evaporated nevertheless, during the coction and evaporation, as is sufficiently witnessed by its smell spreading about, when the Extract is made before the Oyl be separated.

Take all what remains from all the Distillations, without separating any thing, and joyn to it the Cake remaining from the expression of the Extract; fill the Still-body full of it to warm, and so by it communicate the heat to the remainder: which, I suppose, to be put in a Cask or Barrel for fermentation: introduce the Leven or ferment into it with the circumstances and requisite precautions, and so leave it four or five dayes; after which you shall distil it at several times, until you have made an end of extracting all the Spirit: the which rectifie in the same Still-body (*viz.* the *Vesica*) with ℔ vi. of new select and bruised Juniper-berries, and you shall have a burning Spirit, of very excellent and particular vertues: separate the first Spirit by it self, as also the second and the third, to be made use of in such cases as we shall say hereafter.

And to let you know, that Chymistry loses nothing of what may be made use of, percolate and strain the remainder of the fermented distillation, and being warmed, run it through a Hypocras Bag, or a Flannel; then evaporate it to the consistency of a liquid Extract, which is one of the sweetest and gentlest Purges that may be used: This Purgative faculty will perchance, and not without reason, make some to wonder at it: But we will remove this scruple, giving to understand that the action of the ferment hath dissolved and united with the Water the best part of,

of the fixt Salt of these Berries, and as fix Salts looſen the Belly; it is the ſame alſo, which being predominant in this Extract, doth cauſe its purging vertue.

This done, dry the Cake remaining from all the expreſſions, and calcine it, to make a Lye thereof, and extract the Salt thereof according to the method which we have formerly declared, then reverberate it in the Crucible without melting, and diſſolve it in the laſt diſtilled Juniper-Water; then filtrate and evaporate it to a skin, and cauſe it to ſhoot into Cryſtals, which preſerve for your uſe. Thus much we had to ſay upon Juniper-berries: it remains only to ſpeak of the Vertue and Doſes of thoſe noble Preparations, which this Seed doth furniſh us with, and to give you a deſcription of an Elixir or Tincture of Juniper-berries, which is a moſt accompliſht remedy, whereof we ſhall alſo ſay the uſe and proprieties.

We will give to Juniper-berries in general, the vertues which they deſerve, before we come to the particular proprieties of each of the remedies thereof extracted; that this general Application may ſerve, to make the better our Obſervations, when there ſhall be occaſion to uſe thoſe remedies. And in the firſt place, we ſay, that the principal uſe of theſe Berries is to incite, attenuate and diſſipate in general: But they are particularly uſed to provoke Urine and Sweat, to move and bring forth Lunary Purgations, remove obſtructions of the Spleen, correct affections of the Brain, Sinews, Breſt, and cure Coughs, diſſipate Winds in the lower parts of the Belly and Colick; and above all, to diſſolve and evacuate the viſcous and ſlimy ſubſtances, and Sand in the Bladder and Kidneys: They are alſo moſt uſeful to uſe as a Preſervative in time of contagious Diſeaſes, either eaten, or uſed by the way of a Perfume, to correct the venenoſity and malignant diſpoſition of the Air.

It is now very eaſie to apply to every one of the Remedies prepared their proper vertue, for it is common to all, ſince they were extracted from that body which contained them, except the laſt Extract, which is purging, for the reaſons before declared. The ætherial Oyl of Juniper is a Soveraign Remedy to provoke Urine, and appeaſe all pains of the Colick; it is alſo an excellent Topical Remedy in all cold affections of the Sinews; as alſo in

the pricking or cutting of Sinews, by reason of its penetrative quality, but chiefly its Balsamick vertue. The *dosis* is from iij. drops to xv. or xx. in white Wine, or its own Water. The spirituous water which is extracted at the same time as the Oyl, is diuretical and diaphoretical: The *dosis* is from ʒ i. to iiij. or ʒ v. but it hath quite another operation, when exalted with some drops of its Oyl mixt with Sugar in Powder, to make them dissoluble and mixt together. As for the Extract made before the Fermentation, it is a very good Remedy of it self to strengthen the Brest and Stomack, a very excellent diuretical, and safe alexitery; therefore it is made use of instead of common boyled and skimmed or depurated Honey, to receive the Powders which enter in that excellent composition, and famous *antidote*, called *Orvietan*: It is a body of a wonderful use also for the composition and incorporating of Substances that are destinated for Opiats, or liquid Electuaries, against the Plague, all other contagious diseases, and the venerious disease and its branches: The *dosis* is from ʒ ß. to ʒ ß. But the Spirit is an agent far surpassing all what we have said, for it penetrates as in a moment the whole body: so that it may be employed in all diseases wherein the Berries do conduce. And to prove manifestly its penetrating and balsamick vertue, this is a token, That a Patient taking never so little of it, shall be sure that the first Urine which comes from him, will have a very pleasant smell of *Iris*, or Violets: The *dosis* is from ʒ ß. to ʒ ij. in Broths, white Wine, or its own Water: The *dosis* of the other unrectified Spirits of the second and third distillation, may be augmented in proportion to the subtility of their parts. The Purgative Extract is wonderful, to receive in it self the other purging Remedies either Rosins or Magisteries, Extracts or Powders to prepare thereof some compounded Electuary, which with its purgative faculty preserves and advances the vertue of those things that were mixt with it. The *dosis* of this Extract is from ʒ ij. to ʒ i. either dissolved, or taken in *bolus*; the quantity cannot be prejudicial, as is that of other purging medicines, because it will never cause any *Hypercatharsis* or over-purging, neither make any dangerous Colliquation: but it loosens simply and softly the Belly, by a natural detersion of all the Excrements contained in the Entrails, which is a very requisite vertue in many stubborn and

obstinate constipations or bindings. There remains only the fixed Salt to speak of, which is diuretical and loosening, of the weight from ℈ i. to ʒ i. in Broths or its own Water, or what is yet better, in *bolus*, in the purging Extract. This Salt is also capable long to preserve the vertue of its Water, if you dissolve ʒ i. or ij. in each pint.

To prepare the Elixir of Juniper-berries.

℞ Juniper-berries very ripe and very smooth, and choose the biggest and smoothest, till you have got ℔ i. which coursely bruise in a Marble Mortar with a woodden Pestle; put them in a Glass-body double (or Blind-head) and pour upon it the juyce of Parietary and Golden-rod, or *Virga Aurea*, *ana* ℔ ij. cover the Vessel with its Blind-head, and digest all in *B. M.* during three dayes; then having uncovered it, percolate and strain, and distil the Expression in *Balneo* with a soft and slow fire, until there remains an Extract of middle consistency, which put in a Pellican, or some other circulatory Vessel, with ℔ i. of the best Spirit of Juniper-berries; then lute it, and put it to digest and circulate for the space of 8 dayes in the heat of a vaporous Bath: that time over, let the Vessels cool, then filtrate the liquor very pure, and you shall have the Elixir or true Tincture of Juniper-berries; which is a very Soveraign Remedy either to preserve, or to cure, in Plague and other pestilential and malignant diseases: but this Elixir is peculiarly dedicated to the Kidneys and Bladder, not only to evacuate what is viscous and sandy in them: but moreover also to remove the seminary thereof, and hinder by a constant use of this noble remedy, that there should be no further spreading nor generation of them. It is also a Stomachical and Hysterical Specifick, which by its heat and Alexiterial Balsamical and Cordial vertue doth dissipate, whatsoever may cause evil alterations in the Ventricle or Womb. The *dosis* is from ½ spoonful to 1. or 2.

We have no more to speak of Juniper, but concerning its Gum or Rosin, which is a very good Perfume against all defluxions of the Brain, if you receive the smoke in your hair and round about the Neck, as in the stopping of the Nose, or impediment

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in the motion of the Neck, or when the Almonds are swell'd, and the free swallowing hindered; you must also perfume with it the Linnen which are put about the Neck, and the Head. But the best of all, is, that this Rosin, which commonly is called Varnish, or Juniper-Gum, yields an Oyl by distillation, which is wonderful in external use for all affections of Sinews, against the cold, and the impotency of parts which are fallen into some Resolution or Palsey, against all shrinking of Limbs, and generally, all cold Aches in all parts of the Body, whereof no evident cause can be given, and no swelling nor redness appears outwardly. It is also very efficacious to dissipate all cold cedema's, or cold swellings. And is thus done:

℞ Gum of Juniper Coals and decrepited Salt, *ana* equal parts; reduce them to a gross Powder, and being well mixt together, put it in a Glass Retort, and place it in a close Reverberatory: fit a Receiver to it, which being well luted, cover the Furnace, and give it a gradual fire, which encrease till nothing more comes forth, and the Recipient grows clear, which for the most part happens within the space 12. or 15. hours. Separate the two substances which are in the Recipient; for the one is aqueous and acid, which proceeds from the Salt, and the volatile part of the Gum of Juniper, with a small portion of its Mercurial Spirit which also are acid: the other substance is oleagineous, inflamable and sulphureous in some part, yet crass and viscous: therefore must this Oyl be rectified in Sand in a Glass Retort with Salt of Tartar, and so shall you have a clear, subtile, and penetrative Oyl, capable of all the noble effects we have attributed unto it.

Sect. VI.

Of Rinds.

WE ſhall have only two examples to give upon the Rinds in general, the one upon Limon-Rind and Orange-peel, which are volatile, and muſt be diſtilled in a peculiar manner, and with notes that are of concernment, and which the Artiſt muſt attend with care: the other ſhall be upon Rind of *Guaiacum*, which is more condenſed and fixt, that theſe two extreams being oppoſed and compared together, may clear the better the underſtanding in the apprehending of the truth of things.

To apprehend the better for what reaſon we are induced to diſtil theſe volatile Rinds, or Peels, otherwiſe than the Flowers which are no leſs volatile, we muſt take notice of the taſte and ſmell of theſe two Rinds, when they are yet tender, recent, and ſmooth, and compare them with the taſte and ſmell of the ſame, when the fruit hath been kept, the Rind is faded, grown rugged and half dry; for it will appear, that when new and freſh, theſe Rinds will yield a pleaſant taſte and ſmell, which ſubtilly aſcends and inſinuates it ſelf into the Brain, recreates and ſtrengthens it: whereas when the fruit is old and withered, and its Rind ſhrunk in its ſelf; the taſte is unpleaſant and bitter, biting too much, and deſtituted of that vivacity and pleaſant ſteam, which it had before; which is, that notwithſtanding, that ought chiefly to be preſerved, if you will have any good ſucceſs in the Remedies prepared therewith. To attain unto it, chuſe the time wherein you may have ſtore of new Limons and Oranges in great quantity, and at a cheap rate, and pare the Rind very thin, until you have ij. or iij. ℔. which ſhred in ſmall pieces, and put in a Glaſs Cucurbite with clear water, until it ſwims ⅓ foot above the Rind; and diſtil it in Sand with a moderate fire at firſt, which increaſe by degrees, ſo long that the liquor dropping comes out without taſte or ſmell, and no Oyly ſubſtance appears above the ſtilling water. So ſhall you find an ætherial and ſubtile Oyl, which ſhall have all the delicacy and vertue of the Limon or Orange-

Peel

Peel, which keep for your use in Glass Vials exactly stopt. It might be here objected unto me, that I otherwise proceed than those Authors, which formerly have prescribed the manner of distilling those Oyls: since I desire they may be distilled assoon as the Rind is separated from the Fruit; whereas others do prescribe to digest and ferment the same, to purchase a greater store thereof. To which we answer, that we have not here regard to the quantity, which ought to be the least care of the Artist, when he perceives it may bring an alteration to the substance, and diminish the vertue: for as we have noted above, that the steam of these rinds is so subtile, that it cannot but with difficulty be preserved with its own subject, so shall it with much more reason vanish away, when it is separated from it: and although it be true, that the quantity of distilled Oyl will be greater, when the Rind hath been left in digestion and fermentation for some time; nevertheless ʒ i. of that distilled according to our direction, will without comparison exceed in goodness and vertue ʒ i. of the other. They, that desire to have yet less of Oyl, but will at the same time have an excellent Spirit out of the said Rinds, must distil them with good and quick white Wine, and so shall they have a Spirit which will not be much inferiour to the Oyl, which we have mentioned above, when we spoke of the Syrups made out of these Rinds, which will occasion us to say no more for the present.

To make the Elixir of Limon and Orange Peel.

TAke the outward Peel of either of these two fruits, which being cut very small, put in a double Vessel (or blind body) to the quantity of ʒ ij. adding ℈ i. of Ambergrice, and vi. grains of Oriental Musk grinded with ʒ ij. of fine powdered Sugar, pour upon this ʒ viij. of the purest Spirit extracted with white Wine from either of these Rinds; stop and lute well your Vessel, and put it to digest in a vaporous Bath to a slow heat the space of three natural dayes; then let it cool, and percolate and strain the contained matter, then filtrate it in a close Vessel, that nothing of the vertue may breathe away or evaporate: preserve this Elixir carefully, for it is a choyse cordial remedy, which hath few equals

in great failings of the Heart and Spirits, and chiefly in ſudden accidents, after violent exerciſe, or after ſharp and quick pains. Both are very good for men or women with Amber and Musk, except thoſe which are ſubject to hyſterical Paſſions; for which reaſon you muſt not be unprovided of ſome without Musk or Amber for the fits of the Mother. The Elixir of Orange Peel is of much more efficacy than that of Limon for women, to whom it cannot enough be recommended for the great help and benefit they may receive from it in the time of their travels. The *doſis* of this Remedy is from ℈ i. to ʒ i. either by it ſelf, or mixed with Wine, Broth, or ſome diſtilled Water appropriated to the diſeaſe or Remedy.

How the Spirit, Oyl, and Salt, Extract Tincture and Magiſtery, of Rind of Guaiacum is to be prepared.

℞ of Rind of *Guaiacum* the heavieſt, moſt compacted, and moſt ſtreaked with black lines, as you can meet with; powder it groſly, and put it in a Retort of Jugge-mettal, which place in a Reverberatory cloſe Furnace, which we have called above, a Common Furnace: to the Neck of which fit a capacious Recipient, the Joynts whereof you ſhall lute with Salted lute; cover the Furnace and let the lute dry, and give it a gradual fire, until you ſee the white vapours to appear, and perceive ſmall drops of a reddiſh Oyl to mix with the veins which the Spirit doth make in the Recipient; then encreaſe the fire, even to flame, until the Recipient grows clearer of it ſelf. You muſt expect until the next day to open your Veſſels, and you ſhall find in the Retort the remainder of the Rinds converted into Coals, which you muſt calcine and reverberate in a Pot not leaded with an open fire, to convert them to Aſhes, whereof draw the Salt by elixiviation, filtration, and evaporation, according to the manner which we have already ſo many times declared. This Salt muſt ever be mixed in all the Purgatives which you exhibit to thoſe that have a touch of venerious diſeaſes; for beſides that it quickens and helps the vertue of thoſe Purgatives, it purges of it ſelf, and is one of the Antivenerian Specificks. There is two Subſtances found in the Recipient, one aqueous mercurial and acid, which is the Spirit of

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this Rind; the other is a crass and heavy Oyl, which sinks under this Spirit, by reason of the great quantity of volatile Salt, which cleaves intimately to the sulphureous Oyl, and also because a portion of the fixed Salt, which by the violence of fire was volatilized lies confounded in this Oyl; you must separate the Oyl from the Spirit by filtration with Paper upon the Funnel, and the Oyl will remain above the Paper, bored with small holes to make the Oyl flow in the Bottle appointed to receive it. This Oyl and Spirit may be externally applyed without rectification: for you may put a little of the Spirit in liquid fomentations, for the washing of cancerous, slimy, fistulous, and corroding ulcers, and principally those which are caused by the venenosity of the Pox: to apply the Oyl afterwards, either by it self, or mixed with some unctuous body, which blunts the edge of it, that otherwise would become too painful. The vertue of this Oyl cannot sufficiently be extolled for the cure of all old ulcers, and to dissipate Nodus's, but above all, to hasten and to bring to pass the exfoliation of Bones, provided you mix with it a little of the distilled Oyl of *Euphorbium*. But if you will use this Spirit and Oyl internally, you must rectifie the Spirit in Sand in a Limbeck; and as it is an acid Spirit, the Artist must be warned, that the Phlegm doth ascend the first, and that the biting acid Spirit ascends the last; therefore must he sepirate the Phlegm, and put a new Recipient when he shall perceive by the taste, that the drops which begin to fall are acid. This Spirit doth powerfully withstand the venemous quality of the Pox, expelling the same whersoever it meets with it, by the way of Urines, Sweats, or insensible transpiration, provided it be impregnated with its Oyl, which possesses the best and greatest part of the volatile Salt of our Rind, from which it must not be deprived if you will preserve its vertue. To this end, it must be rectified in a Rerort with the Ashes remaining after the extraction of the Salt, and the Oyl shall ascend fair, clear, and subtile, devested for the most part of its empyreumatical odour, which it had contracted in the first distillation: for these Ashes mixt with the Oyl, will retain in themselves all the impurity and grosness, but not keep the volatile Salt, which is the active and virtual principle, not only of this Oyl but also of the efficacy and power of all sublunary Substances, because it is the

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last shelter and bond of the ferment and internal fire of all Mixts; in which resides the power and energy of all their actions: therefore, Artists must not wonder, if we so often do repeat the vertues of this Salt, and recommend unto them the preservation thereof with so much earnestness, considering we do it not by a vain ostentation, nor to fall into needless repetitions, which are never to be born with, but when absolutely necessary, as it is now for the present here in this place.

The general vertues of this Spirit and Oyl are to provoke abundantly Urine and Sweat; and by this means to mundifie and depurate the mass of the bloud from all its impurities, to resist the corruption of the parts, and preserve their use, as the effects thereof make it appear in all diseases of the Joynts, running Gowts, Dropsie, Cathirres, and all other diseases which draw their original from the viscosity and sliminess of tartareous and fixt matters: they are above all Specificks against Venereous Diseases, and all their dependances. The *dosis* of the Spirit is from ℈ i. to ʒ i. in Sassafras water, or decoction of China Root, or Sarzaparilla. The Oyl from ij. drops to vi. or viij. Which before you mix with the Spirit or other Liquors must be distempered with Sugar. Some are of opinion, that the Oyl of *Guaiacum* is that which *Rullandus* doth call *Heraclea*, in the Centuries of his Observations, where he relates so many wonderful effects thereof: which I am the more inclinable to believe, considering that a Taylor of *Paris*, by name *le Cerf*, hath been capable to raise unto himself a credit and reputation by the sole use of Oyl of *Guaiacum*. Others do make use of this Oyl for the cure of Epilepsie, as also to help men in travel, and to bring forth the Child either dead or alive, as likewise the After-burthen: It is not to be forgotten also, that this Oyl doth in an instant appease the pain of cariated Teeth; for the volatile Salt doth immediately penetrate to the small Nerve, which lies at the Root of the Teeth, and stupifies and cauterises it in a manner, taking away its sensibility. Besides the medicinal vertues of the Spirit, it is also useful in Chymical operations for the dissolution of Pearls, Coral, Crayfish-stones, (Crabs-eyes) and the like: but that which hinders most its use, is, that it alwayes leaves some *Empyreuma* or ill savour.

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To prepare the Extract of Guaiacum Rind, and its Tincture.

TAke of the best Rind of *Guaiacum* you can meet with, reduce it to a subtile powder, and put it in a Matrass, and pour upon it Alkool of Wine, till it swims above the height of four inches; then digest it in Sand, and make an Extract thereof; separate the tincture, and so continue with new Spirit till it yields no more of tincture: then filtrate all the tinctures, and in a vaporous Bath draw off half of the Menstrue again; keep by it self ℔ ß. of this tincture, which is a good and quick sudorifick: The *dosis* is from half a spoonful to one and two spoonfuls in warm Wine or Water of Sassafras. Then take half of the remaining Substance, and precipitate it with common Water, and you shall have a Rosin, which you may prepare as that of Jalap: The *dosis* is from x to xx Grains, in *bolus*, in its own Extract: this is a Specifick against the Pox, working insensibly. Evaporate the remainder in *B. M.* to the consistency of an Extract. The *dosis* being from ʒ i. to ʒ i. it produces the same effects as the Rosin or Magistery doth.

Sect. VII.

Of Woods.

THE Woods used in Physick are differing, in whose number we will rank also all the species of it which are ordinarily imployed, to make Infusions and Decoctions, according to the various intentions of those which do employ them: but Chymical Pharmacy works in a different manner upon woods, according to the diversity of their nature: for some of them are gummy, resinous and fat, pressed and compacted, and others more saline, and consequently, of easier Extraction; there is extracted from them by the help of spagyrical operation, Extracts, Waters, Spirits, Oyls, and Salts; whereof according to the diversity of their substance more or less pressed and compacted, we are to give ex-

amples: and for this purpose shall chuse for the subject of our work the *Lignum Aloes*, *Lignum Rhodium*, so called in the shops, *Lignum Nephriticum*, and *Sassafras*, because the examples of all these four will be sufficient and serve instead of all the rest: for as concerning *Guaiacum*, Box, and other like, we have given you the method thereof in the distillation of Juniper-wood, and of Rind of *Guaiacum*, whereunto we refer the Reader for his direction of the work, and for the vertues to such Authors as have written thereof.

The manner of preparing the Extract and Essence of Lignum Aloes.

WE have said above, that Woods were of a different nature, and that for this reason we were obliged to give several examples of them: this we shall declare by the due preparation and extraction of *Lignum Aloes*, which is one of the best that is to be found in shops; in so much, that the *Germans* do give it the name of *Lignum Paradisi*, Wood of Paradise, by reason of the noble and great vertues it doth possess: It will then suffice for a pattern and example of making all the Extracts and Essences of precious and aromatical Woods, because these two preparations are made without any loss of its vertues.

To make the Extract, ℞ ℔ β. of the true Wood of Aloes, the tokens whereof are, that it be Blackish and of Purple colour, intermixed with veins of an Ash-gray colour, heavy, and bitter; and the chief token, when you put a small piece upon a hot glowing coal, that it should yield a gummy and resinous fat moisture, the smoak whereof should at first bite and seize upon the Nostril, but towards the end yield a pleasant and sweet odour, as is that of Benjuin and Peruvian Balsom: and moreover, leave upon the coal after its burning some marks of a kind of liquation; this Wood must be grossly scrapt, and put in a Retort moistned with a little Spirit of Wine; then the Retort placed in Ashes, adapt a Receiver, lute it, and give it a regulate fire, and with good judgement to avoid the Empyreuma or smoaky taste, and so draw softly the ætherial and subtile Oyl of this Wood, which will ascend with the Spirit of Wine; and when the veins shall cease to appear in the Recipient, and that the matter remains dry; cease

the

the fire, and put the remainder in a Blind Matrass, and pour upon it Alkool of Wine, to extract all its Resinous substance; the Wood being well opened by this digestion, pour all into a Cucurbite, and distil with requisite precautions about the third part of the Spirit by it self: which done, cease the fire, and filtrate the remaining Spirit, to add other Wood to it until it draws no more either of taste or colour: then percolate and strain the whole, and filtrate it, to draw off the Spirit from it to the consistency of a liquid Extract, which keep by it self, and boyl the remaining Wood in the distilled Dew or Rain-water, straining the decoction which must be clarified with whites of Eggs, and evaporated also to the consistency of a liquid Extract: warm those two Extracts and joyn them together, to draw yet a little more of their moisture away, and reduce them to a mass of more solid Extract, to which shall be joyned half of the first extracted Oyl, being first tempered, and made dissoluble with powdered Sugar. Keep this Extract for its uses in a Box of Silver, shutting with a screw, that the subtile and operative part of it may not exhale.

Take the Spirit which you kept in the distillation of the extraction of the Wood; put therein ℥ i. more of the best Wood of Aloes reduced to a subtile powder, which you shall digest and extract in a vaporous Bath during the space of six natural dayes in a Blind Matrass, this done, express and percolate the cold liquor, and filtrate it in a covered Funnel; joyn to this Liquor the rest of the Oyl which you kept with twice as much of the Salt of the Wood, or prepared Salt of Tartar, according to the method of *Sennertus*, whereof we have already spoken, and so shall you have the true Essence of *Lignum Aloes*, impregnated with all the vertues and powers, of the Mixt whereof it was extracted. The *dosis* of the Extract is from iiij. to x. grains in *Bolus*, or dissolved with some specifical burning Spirit: for besides, that it would not dissolve in aqueous Liquor, it should come short of the vertue; and though it should happen to dissolve, there would be a precipitation made of the resinous and fat substance, which would never incorporate with the Water, and debilitate the remedy instead of increasing its vertue. The *dosis* of the Essence is from iv. to x. drops to be exhibited to the Patient in burning or hot Spirits of Juniper, black Cherries, or *Elixir Vitæ* of *Mathiolus*,

and not in aqueous liquors for the reasons alleadged above: but because there are many tender and delicate persons, which cannot endure the taste and strength of these Spirits; the Extract or Essence may be mixed with a spoonful of convenient Syrup, of somewhat a thick consistency: for the Sugar keeps back the Water and hinders its action upon the resinous substance of the Extract or Essence. These two remedies are two specifical comforters of all the principal parts contained in the lower-most, middlemost, and uppermost ventricle; it recreates the vital Spirits and animal Spirits of the Brain and Womb: therefore it is excellent against all infirmities of these two parts: they are also very good to strengthen the digestive faculty of the Stomack, kill by the bitterness of their Salt and Spirit the Worms which breed in the Ventricle, and extirpate totally the seminary thereof, as much in aged persons, as young children, except that a regard must be had to the *dosis*.

To prepare the Water and Oyl of Lignum Rhodium.

WE bring this Wood for an example, to evidence that it is necessary for a Chymical Artist, to work upon all kind of Substances to extract their vertue, without any deperdition of their pleasantness, for it would be very easie to distil this Wood, by a Retort in open fire: but its pleasant smell should be lost; and besides, the Spirit and Oyl which should be extracted that way, would not have the same proprieties, with those of the Water and Oyl extracted by the method which we are now about to teach; and because the *Lignum Rhodium* is a heavy Wood, fat and compacted; it must be opened before you can by distillation extract the central vertue of it: Therefore procure above the quantity of xx ℔. to be scraped, and put them above six weeks in Rain-water to steep, with ℔ iiij. of Tartar in powder, to volatilize in a manner, the most first parts of the Wood: this time being expired, put the fourth part of this infusion, with the fourth part of the Wood in a Still-body (or *Vesica*) and pour more Rain or River-water, till it comes ½ foot near the brim; cover it with a Head, and give a gradual convenient fire, having fitted to it a pretty big Recipient, until the Water

ter in dropping down appears to have no more of Oyl in it. We have said it should be a capacious Recipent, because that little of Oyl which it yields towards the end would be lost in new Recipients, whereas in a capacious Recipient, the last Oyl joyns and unites it self to that which issued out before. But it is to be noted yet, that what doth distil ought to be somewhat warm, which is quite contrary to the common practise in distilling of hot and volatile spirits, for the Oyls must be separated from their bodies by a strong ebullition, driving the same upwards, and raising it with the aqueous vapours; but the heat must again be temperated, lest the Phlegm should ascend in too great abundance with the Spirit; and moreover, whereas in Spirits the Water above the Worm must be kept very cool, it must not be renewed in the distillation of Oyls. We did purpose to set these two Notes at large, because the observation of them is of absolute necessity in the work. The Water must be separated from the Oyl, which will be clear, fair, and yellow, and of a good smell: and thus continue your distillation till all be ended. This Oyl is excellent for perfumes outwardly: it may also be inwardly applyed, reduced to Sugar, Oyl, or *Elæosaccharum* to dissolve in its Water, or some diuretical Water, for the cleansing of the Kidneys and Bladder from Slime and Sand; it may also be used with very good success in Gargles to abstergе and cure Ulcers in the mouth, and wash and mundifie them in other parts of the body, and particularly in the parts appointed for generation.

To make the Extract of Nephritical Wood, or Lignum Nephriticum.

THis Wood is brought from *New-Spain*, is tender and dry, though heavy, by which it appears to be more Saline than Oyly, and therefore communicates easily its vertue to Water, which it dyes of a yellow-brown colour, in decoction appearing somewhat blewish in the Surface. We have chosen this Wood to show its difference from others; for although it be inodorous & insipid, it is nevertheless endowed with much vertue, and expels powerfully by Urines, whether simply infused in cold Water to drink the colature thereof, or mixt alone with white Wine; or whether a decoction be made thereof, which is very insipid. In this manner

it conduces very much to help those that are troubled with the Stone, Gravel, or stopping of Water. But above all, it is considerable in decoctions against the Pox and Scurvy, for it frees easily and powerfully the Patient from the venom of these two diseases; and, because this Wood is not to be found every where, we have thought it necessary to teach the manner of its extract, whereby the Artist may regulate himself in all other Woods, which shall be of this kind. Scrape ℔ vi. of this Wood, and make a decoction with Roots of *Resta-bovis*, Hundred headed-thistle, or Sea-holy; *ana* ℔ iij. and ℔ i. of *Virga-aurea*, or Golden-rod in ℔ xxx. of River or Rain-water, till ½ be consumed; then percolate and express it, and make a second decoction of the cake remaining after the expression in ℔ xx. of fresh Water, then percolate and strain it, and so continue until the decoction takes no more colour: which done, clarifie all the decoctions, and run them through the bagg, and evaporate it in a slow heat without ebullition, to the consistency of a liquid Extract; to which add the Salt extracted from the remains of your Extraction. This Extract is an excellent diuretick aperitive Remedy, which may be exhibited from ℈ i. to ʒ i. in Broths, white Wine, or decoction of *Lignum Nephriticum*, when those which are troubled with Gravel, Stoppings of Water, or Nephritical Colick are in the half Bath: but with this precaution, that they take before and render again a Turpentine Glyster.

To make the Spirituous water and Oyl of Sassafras.

THe Sassafras Wood or Pavame comes from *Florida*, and differs yet much in nature from the above-mentioned Woods; for it is very odoriferous; and being never so little warmed by rubbing, it sends forth Spirits which affect the smell with much pleasure, and shows this Tree to be very pregnant and full of volatile Salt, whence it is evident, that it hath much vertue. The smallest is to be chosen for distillation, and must have yet its Rind about him, and if it were possible, some of the Root with its Rind; because the Rind possesses more of the ætherial Oyl, or volatile Salt and Spirit, than the internal substance of the Wood, which is light and spongious, as the subtile and aromatical taste of the Rind, resembling

bling that of Fennel, doth testifie: And as we said, that the *Lignum Rhodium* must be opened to volatilize it; here we must proceed in a quite contrary method, for we must distil the Sassafras assoon as it is cut in pieces, and that in a Still-body with Rain-water: but if you desire to have an excellent Water, and little of Oyl, you must distil it with white Wine: but if you only aim at the Oyl which is very excellent, have only Water. The Oyl of Sassafras sinks in the bottom of the Water, as that of all aromatical Substances. The spirituous Water is excellent against all kind of obstructions, and chiefly those of the Spleen, which it alleviates more than any other remedy. It is also excellent for the Stomach, strengthening the digestive heat, and correcting the crudity of aliments, it wonderfully helps the Wind Cholick. It is an infallible Sudorifick or Diuretick; for it will never miss of its effect by the two natural wayes, because if the Patient will not admit of much covering, and that the sweat by this means remains concentrated, the vertue of the medicament will never fail to show it self by Urins: because the actions of Spirits and volatile Salts, can never be hindered; therefore is this spirituous Water very specifick in venerial diseases, as also in scurbutick dispositions. The *dosis* of this remedy is from i. to ℥ vi. either by it self or mixt in white Wine. The tincture which the Artist will draw from Sassafras, with white Wine, in *B. M.* in a Blind-head, may legitimately be substituted to the spirituous Water, when he shall be in haste and forced to make use of it: ℥ ß. of Sassafras is enough for ℔ i. of Wine, but the *dosis* must be double of the Water. Now as the Oyl is more subtile than the Water, because it is only made of a little Sulphur very subtile, and all the remainder is only volatile Salt, so ought it also to be less: for it must not be exhibited, but from the quantity of iij. to x. drops, reduced to a dissolubility with Sugar in powder, whether it be given in its own Water, that of Cinamon, white Wine, or Broth, for all the diseases we have intimated here above: but above all, in difficult Travels of women, whether the Child be dead or alive: as also to expel the After-burthen, and purge the woman in Travel, without much griping: for this Oyl strengthens the Womb,

and

and makes it discharge with more ease, and in less time, those superfluities wherewith it was incumbred since Child-bearing. Finally, this praise may lawfully be given to *Sassafras*, that it is a kind of *Vegetable Panacea*, since the Remedies extracted from it may be administred in all kind of diseases; and moreover its constant use may make either sex fruitful, but chiefly the female kinde; for it heats, and softly and naturally strengthens all the internal parts; but chiefly those that conduce to generation.

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A COMPLEAT BODY OF Chymistry:

Teaching the whole Practice thereof by the most exact Preparation of *Animals*, *Vegetables* and *Minerals*, preserving their essential Vertues.

By *Nicasius le Feburc*, Royal Professor in Chymistry to his Majesty of *England*, and Apothecary in Ordinary to His Honorable Houshold.

Rendred into English by *P. D. C.* Esq. one of the Gentlemen of his Majesties Privy Chamber.

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A Compendious BODY of Chymistry.

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Of VEGETABLES, and their Chymical preparation.

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Of Juyces and Liquors.

THE Juyce of Plants which is their nutriment, has the same analogy with Vegetables, as blood with Animals: Now as there are needlesse or hurtfull superfluities, resulting from the elaboration and assimilation of the blood, when appropriated to the substance of animals, such as excrements, urine, sweat, fat, slime, stones and vitriolated humors, nitrous, aluminous, acide, bitter, *sharp* Juyces, and others also of a mixt nature, whereof the animal disburthens it self, either gently and naturally,

rally, or violently; so likewise in Vegetables, are found juyces of several rellishes, which analogically do answer to these excrements: such as oyls, Resinous and clammy substances, gums and viscosities, tartarous and saltish emanations. There is nevertheless this difference, that animals have conveyances fitted and appropriated by Nature for the disburthening of their superfluities: which is not so in the plants, unless we will attribute it to their porosity, through which they do exhale and evaporate both good and bad smells, as the most subtil, fine and volatile part of their contents, the grosest remaining in the body of the Vegetable; upon which account they need the hand and industry of the Artist to separate and disunite them: it seems nevertheless that some of these Substances strive naturally to free and set themselves at liberty: for experience teaches, that as soon as some part of their rind is opened by incision, humors will flow from thence abundantly, and therefore observe four sorts of Species: First, the aqueous substances, which are juyces or water, as that which flowes from the Birch-tree and the Vine. Secondly, the terestrial, which are gums. Thirdly, the Sulphureous, which are Oyles, Balsams, Resins and resinated gums: Fourthly, Salinous substances, as Tartar and Sugar. But as all this we have said, evidences those substances to be naturally parts of plants, to each of whom we have also designed a peculiar Section, to teach the Chymical Apothecary what operations he may perform upon the same: Our intention is to speak in this present Section, of such juyces only as Nature and Art do furnish us with, *viz.* Wine, Vineger, and their Tartar; Opium, which is the condensated juyce of Poppy; and Elaterium, which is the juyce of the wild Cucumber: These three examples will suffice, because there will occur enough in them whereby to ground our observations both upon the Theory of these matters in general, and the practice of their working in particular: and withall to instruct the Artist in all other operations analogical.

The

The Anatomy of Wine.

WINE is the juyce of the fruit of the Vine, exhaled by fermentation, which by *Paracelsus* is call'd The blood of the Earth, the juyce of the Prince of all Vegetables, the Soveraign Cordial, thought also by some to be the juyce of *Raymond Lully, his great Lunaria:* others call it again, the juyce of *Janus's plant*, and of the great Vegetable: but leaving all these names, let us come to the anatomy of the thing it self, and of its parts. Wine then, first of all, does yield by the help of Distillation, a most subtil and incorruptible essence, commonly called *aqua vitæ*, burning water, spirit of Wine, heavenly Sulphur, Bezoartick vegetable Sulphur, Heavenly Menstruum, Cœlestial water, the Heaven of *Raymond Lully*, the Philosophers Key, an æthereal body consisting of fire and water, the volatile Balsam of the Catholick or universal Liquor, and finally the Quintessence of Wine. In the second place, it yields in the separation, great store of insipid and corruptible water, which is called its Phlegm. Thirdly, there cometh a certain sumous or smoaking Spirit, which is nothing else but the grosser part of the volatile salt of Wine, reduced into vapor, and ascending under the form of a whitish smoak. In the fourth place follows, a certain fat, unctuous and combustible oyl, but in very small quantity; and fifthly, from the thick and black substance left in the bottom, is extracted, a penetrating, subtil and fixed lixivial salt after calcination; and finally in the sixth place, after the salt is extracted, there remains a muddy, insipid, and needlesse earth.

We have said the Wine was made such only by the help of fermentation, and therefore are bound to illustrate it by proof, which we hope easily to perform: since none that hath converse with wine can be ignorant, that Must or wine in the Must was never Wine, and that no body gives it ever the name of Wine, but after Fermentation is ended: but there is another more Philosophical proof, and more satisfactory to the mind of a Chymical Artist, who knows that all whatsoever is wine and is called so, yields its spirit before the phlegm; and that in the distillation of Must,

improperly and commonly called ſweet Wine before fermentation, there comes nothing but an inſipid meer water, reſembling that of Rain; which is a convincing proof ſince it falls under ſenſible demonſtration; for after the diſtillation is performed, there remains a pleaſant extract of a ſweet and ſaccharing taſte, containing in it ſelf the eſſential and volatile Salt of Muſt, and and its heavenly Sulphur, uncapable now of action, being too much reſtrained, and deprived of ſufficient humor or moiſture to reduce his power into act: but if you reſtore unto it a ſufficient portion of water, and can dextrouſly introduce a ſpark of Oyle there in, by the help of ſome fit and appropriated Ferment, it will work again in a ſhort time, and make it appear, that his fermentation only can perfect and make the wine. For all the Maſſe will ferment, and the liquor by this means contract the taſte, ſtrength, pleaſantneſſe and all other perfections of Wine, by which it evidently appears, that Art is capable in ſome way to imitate Nature, and that amongſt all other Arts, Chymiſtry alone can attain to the Theory and practice of this Artificial Fermentation.

Now it is not enough to have deſcribed the ſix parts or ſubſtances which Wine affords in general, unleſſe we come to its particular anatomy: they that will pleaſe their eye, muſt take good wine, clear defecated and ſubtil, of a generous and ſtrong complexion, and diſtill it in *B.M.* in a great glaſſe Cucurbit, that they may the better examine, with the eye which all the ſubſtances ſhall aſcend: for when the pure Spirit riſes, the veines will ſcarce appear in the Still-head, ſo ſubtil they are; and when they are totally deprived of phlegm, they aſcend not in a ſtraight line, but are crooked and winding: but when the phlegm begins to mix with them they become more ſtraight & viſible, by reaſon of the waight of water which more viſibly doth incorporate with them; when this comes to paſſe, the Cucurbite or glaſſe-body muſt be expoſed to a Sand-furnace ſomething warm: but the moiſture muſt be wiped off from the veſſels firſt, and a graduated fire adminiſtred, to perform thus the whole anatomy of Wine, for the ſatisfaction of the Artiſt. But becauſe this proceſſe is ſlow and tedious, and that the Laboratory of the Chymical Apothecary, ought to be furniſhed with great ſtore of Spirit of wine of all ſorts, being the

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chief menstruum of all, and the more conformable to our nature, for the execution of the finest operations; we think fit to deliver a more compendious and quick Method of distilling Wine; as a ground to explain afterwards all the processes of work which may be done upon it, to render it useful to all preparations whatsoever, which the same Art will take in hand.

To extract the Spirit of Wine.

FILL up your (Vesica) or glasse-body, half a foot near to the mouth with a good strong and generous wine, well defecated, then cover it with a Head, and lute it, administring a soft and gentle fire, untill the drops begin to fall, and the pipe of the Moors head grows so hot, that your hand cannot rest upon it without burning: then stop the Furnace on all sides, and keep the water in the Tunne (through which passes the neck or worme) very cool, guiding the fire so judiciously and so moderately, then whatever falls into the recipient may fall alwayes cold; for in doing so you spare the trouble of a Rectification, because phlegm cannot easily ascend and mix it self with the Spirit, when the heat is well proportion'd and fitted to the work: the first Spirit drawn must ever be layd by it self, as the most pure and most subtil; and the distillation continued, until the distilling liquor grows insipid: this phlegmatick Spirit which comes last, must be mixed again with the next wine you are to distil, and so proceed until you have a sufficient quantity of Spirit or *aqua vitæ* drawn, to supply a rectification in the same glasse-body; But now in this part of the operation, above all things the fire must be heeded, and skilfully govern'd, and cold water timely supplyed and often changed, because it easily will contract heat, the vapors of these fiery Spirits being much hotter then those of grosse bodies. That which remains after the distillation of Wine must not be thrown away; but to the contrary evaporated to the consistency of a black and clammy extract, much like unto pitch; which must be distilled in a Retort, with open fire, and thence will come forth an acid and sharp volatile Spirit, and a black and ponderous Oyle, all participating much of Empyeum, and having a strong fiery smell, what remains

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in the Retort must be calcined in a crucible or a glased earthen pot until it comes to a perfect white; then lixiviate it, and filtrate, evaporate and dry to a Sun, which is to be reverberated in the Crucible unto redness, without putting nevertheless the matter therein contained in fusion, then expose it to the ayr to dissolve it and subtiliate the parts thereof; and so will it divest it self with many more viscous and clammy feculencey's that are to be separated afterwards by alteration, then evaporate or separate the water from this Salt again upon ashes, and being dry, gloom it in a Crucible without melting, and expose again to the ayre until dissolution, then filtrate, evaporate and dry again, and so proceed reiterating till seven times, or what would yet be better, until the salt leaves no more feculenceys in the filtration, and that when you shall extract the moistnesse of the dissolution in *B. M.* to the fourth part, you have a clear chrystalline white and transparent Salt: then may you confidently boast you have a *true salt of Wine*, which to a diligent, curious and knowing Artist, may serve as *a Key to open all natural bodies*, after the same hath been acuted with its Spirits, and made capable to fly and ascend with the same: for then will they not only penetrate into the bodies of Vegetables and Animals, but even also will act upon Minerals and Metals, provided they have been first destroyed and made fit to be extracted by this noble Menstruum, which we above all things do recommend, to such as have a desire of successe in Chymical Operations.

To prepare the Alkool of Wine.

THE Chymical Laboratory, which is the true shop of a good Apothecary, must be furnisht with store of very subtil and very pure Spirit of Wine, whom the Authors use to call *Alkool of Wine*; and as it requires both time and store of charges to bring to perfection, I have given the Model of a Vessel capable at once, and with an easie charge to perform this operation, without the trouble of so many reiterated distillations, which to do the work exactly were necessary before this useful invention; because the Vessels wherein the cohobations required for rectification and alkooli-

koolization were made, being too low, it caus'd the phlegm still to be more with the Spirit; but in this Vessel of invention, it is impossible the phlegm should ever ascend, let the heat of the fire never be given so great: as it is evident in the latter end of the distillation of Spirit of Wine made in your Vesica or still glasse-body; for when the phlegm begins to overpower the Spirit, being in greater quantity, the heat of the fire must be encreased in a double, yea a treble proportion to cause the remaining Spirit to rise, which is in nothing inferiour in purity, quickness and subtility to the other that first ascended, as it is made evident by experience, and by the proofs and notes of its perfection: which are, that this Spirit being set on a flame in a silver Spoon, or of any other Metal, it flyes and consumes all away without leaving so much as a drop of phlegm, or sign of moisture in the bottom of the Spoon: The second note is, that a piece of paper or Cotton, or rag of linnen being dipt in this Spirit and set on a flame, it doth not only all vapor and consume away, but moreover enflames and kindles the body which first it had moistened, provided it has been well dryed before. The third and the best note and an infallible one, is, when the finest Gunpowder well dryed is moistened and imbib'd with this Spirit, if you see it on a flame it will at last consume also the powder; for then it is a true concluding sign, that no portion of phlegm remains mixed therein: for did there remain never so little the Gunpowder would never take fire, wherefore this operation saves much time and labour; For when all the Spirit of what was put by the Artist in the glasse-still body is ascended, let him only fill a crooked pipe or Spoon with water, and insert it in the Vessel by the small channel it has in the side, and thus shall he empty the still body to the very bottom, without being put to the trouble to take off the Lute of any part of the structure of the Vessel, and by the same channell or conduit may fill up again the same glasse-body with new *aqua vitæ* by a Funnel, and so may he almost continue unabrùptedly day and night his work without any trouble, provided he takes care to supply the fire as it shall waste and consume away. And if the Artist shall propose to make yet a more subtil and refined Spirit of Wine, more penetrating and active then the former, let him put in the bottom of the body of our Vessel or Engine of Sal □.

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very dry, and pour upon some rectified Spirit of Wine, luting all the joynts after commissures of the Vessels with a Hog or Neats bladder dipt in white of eggs well beaten, then administer the fire until he has drawn again all the pure Spirit, which will have a most pleasing taste and fragrancy then the former, and be very apt to make therewith those impregnations and imbibitions of Salt, whereof we have spoken here above, as also for the extraction of many fine and excellent Tinctures. There are some which call this Spirit so alkolizated upon Salt of Tartar *Tartarizated Spirit of Wine*, but very improperly: for the true Spirit of this nature can be no other, then that through which has been wrought the most subtil pure and refined part of the Salt of Wine: which is a very painful operation, and deserving rather the care and industry even of the most consummated in the practice and mysteries of Chymistry, then the impatience and unskilfulnesse of those which are but Novices and young Practitioners in the operations of this noble Art.

It remaines onely we should speak now of the great and wonderful vertues of this noble Spirit, which can never be commended or praised enough by any body; howsoever ignorant bablers, who are not acquainted with it, may speak to the contrary: for it a most penetrative and incorruptible Spirit, potently resisting to putrefaction, and to all injuries of cold and frost: and, I let you judge and consider, whether there must not be a capacity in this Spirit to preserve living bodies and their parts, being duly and judiciously administred; since it preserves dead bodies; whereof those which keep therein for several years abortive fætus's may be sufficient witnesses, as likewise Surgeons, who so usefully and successefully apply it for stopping the progresse of Gangrenes and other accidents tending to corruption of the parts of the body. It revives and awakes the vital and animal faculties: and therefore produces sometimes surprizing effects in Apoplexies, Lethargies, Epilepsies, and all other soporiferous affections of the body, where the passage of Spirits is obstructed by some grosse clamminesse and viscosity stopping the sinews which are the Organs of sense and motion: for this Spirit penetrates in a moment even as light, dissolves and eats whatsoever was the cause of obstruction, and causes life and all its functions which were as buried and suffocated,

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to shine and appear again ; But if it has any considerable vertues in internal applications, it shows no lesse estimable ones in external: for by its fiery and Celestial quality it dissipates and resolves all cold and schirrous tumors, opens the pores and drives or exhales the windy vapors which sometimes are raised between the spaces of the Muscles, causing very sharp pains, it hinders the coagulating of the blood in all manner of contusions, and so prevents all manner of accidents which commonly use to follow them: as swelling, pains, corruption of the extravasated blood, which of necessity without this help must putrifie, and would afterwards come to suppuration, were all those ill consequences and symptomes not hindered by this Spirit. But above all, this Spirit is a wonderful Specifick against all manner of burnings, the grief whereof it allayes, and takes away the wildfire from it, with such a sudden help and quickness, that no penetration or ill impression can happen in the parts offended where it is applyed, not even so much as blisters or rising pustulas in the flesh, provided it be put upon before the skin begins to peel of, and before any other Remedy be made use of. But I want words to expresse further the worth and vertue of this Heavenly Balsom: wherefore, I leave the rest to the experience of such as will make use of it; which I may safely and on my conscience assure, that they shall never be deceived in the use thereof.

But as the young Artists might easily mistake, and equivocate in the rare appellation of Spirit of Wine alkoolizated, which for abreviations sake is writ *alkolized*, confounding it with Spirit of wine *alhalized*, it is necessary to shew in wherein they differ, and to teach the way how to prepare the last in a more exact and artificial way then any hath done hitherto: but before we come to the description thereof we will shew the difference between both; which consists in this, that alkolized Spirit of wine, is nothing else but the said Spirit pure and divested of all phlegm, as we have described it above: but Alhalized Spirit of wine, is a Spirit impregnated with its own salt, which is prepared two several wayes: the first by the help of its essential salt, which is Tartar, and this cannot very properly be called Alkalized, becaufe Alkali signifies a fix salt made by calcination; but when the Artist has attained the

skill to impregnate the Spirit of wine with its Alkali, it is then properly that he may call it Alkalized Spirit of wine: for that which is prepared with Tartar, is more conveniently named Spirit of wine acuated with his own Tartar, or Tartar fated. I cannot bury in silence the errour of those who pretend by a single dissolution to unite the very pure Spirit of wine and its purified Alkali together, to make therewith their Alkalibed spirit of wine: since those that are acquainted with the nature of salts Alkali, and that of Alkohol of wine, know that they work not one upon the other, if the salt be very dry, and the spirit very pure, but if the salt participates of the least moisture, or that in the spirit there remaines yet any small portion of phlegm, then will there happen some small dissolution of the salt, but there will be no union made of either with other, because they are of a quite different nature, the one being æthereal and combustible, the other a salt dissoluble in water: those that know what belongs to true Chymical Philosophy, can be competent Judges of what we have said, and will confesse that not without reason we have insisted a little on the elucidation thereof, not to prejudice the Chymical Artist.

How to prepare the Tartarized Spirit of Wine.

℞ lb ij. OF Spirit of Wine of the first distillation, pour it in a glasse Retort, wherein you have put ℥ j. ʒ very pure and clean reduced to a grosse pouder, put your Retort *B. M.* filld with moistened sawings of wood, and only four fingers high of water in the bottom, the vapor whereof will gently entertain the heat and moistnesse of the saw-dust: administer moderate and soft fire, that the drops falling into the Recipient which must be exactly luted, may follow gently one another and without hear, so that between the falling of each drop there may be an interval of four pulsations or beatings of the pulse, or telling slowly four; as soon as the phlegm is perceived to come forth, you must give over: and if any should happen to have ascended with the spirit, it must be separated by rectification. This operation must

must be thrice reiterated, taking still ℥ j. of fresh ☿. & observing the same degree of heat: to conclude, deliccate well the ℥ iij. ☿. which you may use oft in your distillation: put your distilled spirit in a Retort, and add to it those ℥ iij. ☿. reduced to pouder, and above all things well dryed; fit immediately to it a Recipient and lute it exactly, then distil in ashes softly, until you see the drops cease to fall; then by degrees encrease the fire, even until nothing more will come forth; then shall you have the tartarized spirit of Wine, or acuated with its Tartar, being an operative and diuretick Spirit, but above all a most excellent menstruum for the extraction of several noble and useful Medicinal Tinctures. And you are to note, that on the top of each of these distillations there will swim a small portion of Oyle which must be taken off every time, because it is *the true essence or oyle of Wine*, and a very high Cordial. But if you will have a Spitit yet more penetrating, more active and more subtil then this last, calcine your Tartar remaining after these distillations, with ℥ xij. more of very pure ☿. in an earthen glazed pot with a circular fire, or (△ *rota*) until it has contracted a mixture of blew, white and red colour; and whilst it is yet warm, beat it to pouder in a brazen Mortar heated with its iron Pestle; and immediately throw the pouder in a double Vessel, and by little and little impregnate or inbibe it with your tartarized spirit of Wine; and when the spirit hath sufficiently penetrated all the whole Masse, pour on more to the height of four or five fingers: then stop the necks of your double Vessel where the joynts meet and lute them very exactly with a Bladder, whites of egg and quick lime, and place your Vessel to digest in *B. M.* with Saw-dust, the space of six weeks, in a moderate heat imitating that of mans body: This time being over, take away the upper part of your double Vessel and apply nimbly a Chapital or Still-head, which luted, continue the fire, but of somewhat stronger a degree, and distil the spirit from it till it leaves the bottom dry; then about the end give a very quick fire, and you may then boast of having a *tartarizated*, and in some kind an *alkalized spirit of Wine*, of a sweet and pleasing fragrancy, resembling that of the flowred Vine; because the internal Sulphur of the calcined Salt has in a manner dulled and deaded the edge and quickness of this Spirit, which is very effectual to draw the

Tinctures, and make the extracts of all Purgatives, whose unripeneſſe it corrects with all other peccant qualities, digeſting the ſame and altering for the beſt, by the help of that Celeſtial fire which it conceals and poſſeſſes in its entrals: whence proceeds alſo the vertue it has to preſerve the vigor and faculties of all Animals, Vegetables, Minerals and Metals. It is one of the great Arcana in the practice of Phyſick, and chiefly in tartarous Diſeaſes proceeding from obſtructions of a fix and tenacious Salt, form'd in the entrals, becauſe in the coction the ſtomach is deſtituted of that ſubtil, volatile and energetick Spirit, which is capable either to expel them by inſenſible tranſpiration, or eject them by Urine and Sweat: whence it comes to paſſe that this Spirit is of a ſoveraign efficacy in Scorbutical and all other Diſeaſes of the Spleen and hypocondrical affections, of Aſthma's or ſhort breath, and Cachexye or depraved diſpoſition of the entrals. It cauſes alſo ſleep, adminiſtred with a little of the Tincture of Saffron. The Doſis is from ℈ ij. to ʒ j. in Wine, Broth, Decoctions, or any other appropriated Liquors according to the intention of the Phyſitian; we leave all the other preparations which may be made of Wine and of its Spirit, to the examination and curioſity of the Son of Art; holding it ſufficient to have inſinuated all the neceſſary Methods, from which we may fetch the Rules of not erring in his beginnings and firſt preparations, as alſo the Method of attempting further, when he ſhall have a mind to ſatisfie himſelf about any remarkable operations, which he ſhall meet with in the moſt famous and celebrated Authors.

Of the Anatomy of Vinegar.

THE name of Vinegar doth ſufficiently evince that the ſubject of this work muſt be acid Wine; but uſe has prevailed that the name of Vinegar ſhould be given to all acid Liquors, made out of Beer, Cider, or Perry: but in all Chymical operations Wine-vinegar alone is to be uſed, being the moſt excellent of all other Vinegars, becauſe it proceeds from an alteration of the Prince of Vegetables, which abounds moſt in vitriolick and acid

salt which is its Tartar: and when the Wine is robbed and deprived of the purest part of its spiritual and igneous Sulphur, then the predominant Tartar changes all the remaining liquor into Vinegar: a speculation of very great importance, and very well worth consideration; for *Paracelsus* makes use in his books of *Archidoxa* of the comparison of the Sphere of Activity of Vinegrifical Ferment (if I may use this barbarous word) to prove the strength and vertue of transmutative Tinctures: and the learned *Van Helmont* cannot find a better proof for the secret action and hidden intrinsecal power of fire, light, and the internal Ferment of mixt bodies, then by comparing that Ferment with the leaves of bread, and the Ferment of the stomach: But moreover, he relates a story concerning the strength and power of Spirits impregnated with the Ferment of Vinegar, which is that, if you fill with River water a Cask of Oak very dry, wherein for some time before has been put good Wine-vinegar, and expose the same to the beams of the Sun, during the heat of the Dog-dayes, then the fermentative spirit of Vinegar shall transmute and change by his magisterial tinging and transmutative vertue all this quantity of water into Vinegar; a thing that will appear very possible if we reflect upon this, that one pound or two of dough having in it the principle of leaven, are capable to turn a hundred pound of wrought dough, not only into leaven, but to convert them also into spirits Animal & water: Now the Cask is made of boards or planks of Oak, which is a tree altogether of a vitriolick nature, and whereof by distillation a very potent, acid or sharp spirit may be drawn; but that which is the chief of all, is, that the pores of this wood are filled with the most subtil parts of the Spirit and salt of the Vinegar which it contained before, which retains still in, and with it self the Character and power to convert into vinegas all such liquors as be put in the Cask, provided it be assisted with the Suns or any other constant and continued heat that may supply its room and office. But that which he notes of more wonder, is, that this Vinegar of water was all spiritual; for whereas the vinegar of Wine, sends forth in the distillation his phlegm first of all, and yields but towards the end his spirit: the vinegar of Water contrariwise, doth still send forth and yield spirit equally from the beginning of the distillation to the end, and still with the same strength and dissolutive vertue.

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The manner of distilling Vinegar.

CHUSE of the strongest and best Vinegar you can meet with, and put it in glasse bodies or Cucurbits till they be half full, then cover them with their heads and place it in sand, making but a plain lute with a filter of wet paper: then administer the fire, and the first thing that shall ascend will be the phlegm, which is an evident proof that Vinegar is nothing else but a wine, which the salt and acid Spirit prevailing over the æthereal and subtil sulphur hath fixed. From time to time you must examine the taste of the falling drops, that you may change your Recipient as soon as the drops shall grow acid, and so drive the fire with an equal heat until all the spirit of the Vinegar be drawn, which commonly is called *distilled Vinegar*: You must note to cease the fire when there is but little of Vinegar left; otherwise that which is in the bottom of the Cucurbite would burn, and so communicate an ill empyrematical smell to the spirit of Wine: but to prevent this accident, warm Vinegar to pour again into the Cucurbite, which may be done for three ends: First to exhale and vapour away some part of the phlegm of Vinegar; Secondly, to hinder by the heat, that the glasse-body should not break; and in the third place, that the new Vinegar may dissolve the grosse and feculent one which is in the bottom of the Cucurbite, and so shall the distillation go on without contracting any empyreuma add losing any time or heat of the Furnaces. But they who intend to make a very strong Vinegar for metallick operations, have no need of all these precautions, because it is even necessary to drive the salt which is found in the remainder of the Vinegar into a Spirit, to make it penetrate the better into the bodyes or calpes of Metals: wherefore there ought to be no fear of heightning the fire towards the end, until all the reddish fumes or vapour be over, with this caution nevertheless, that the Vessels must be well luted, which are to suffer such violent fire, because the last spirits are very penetrating and subtil; and as distilled Vinegar is a menstruum of much use in Chymical operations, so is it requisite that the Artists Laboratory be well provided with these three kinds, *viz.* acid phlegm, spirit of

of Vinegar without Empyreuma, and this last driven with the intenfest fire, that he may be still supplyed wherewithal both to prepare Remedies and satisfie his Curiosity, in Philosophical trys-als and Experiments, which daily he is invited to make for the satisfaction of his mind, and to prove whether his reasoning is answered by successe, and know whether all what we have delivered by Authors is true or false. Distilled Vinegar hath no very great use in Physick, unlesse applyed as a dissolvent for the preparation of other Remedies; or to make Syrups, as we have said above, or to prepare Bezoartick Vinegars, and Remedies against the Plague: for it is endowed with an incising and attenuating vertue, and therefore is Diuretick, Aperitive and Sudorifick; it is even Alexiterial and cures the biting of Serpents, because it kils by the subtility of its acid spirit, the volative salt of the spittle and venom of these creatures: it produces the same effect on tart, hot and corrosive gummes and all condensated Juyces which are deemed venomous and of a dangerous quality: Wherefore it is employed by Chymists as the true Correctives of Remedies prepared therewith.

To prepare the Radical or alkalized Vinegar.

℞. ℔ v. OF very strong distilled Vinegar well dephlegmated, or vj. ℔. wherein you shall dissolve ℔ j. of Chrystals of Vinegar, which are nothing else but its own Tartar well purified, which by some is called *its essential salt*, and by others *its volatile salt*, but improperly enough: digest them togeather for the space of fifteen dayes in a double (or circulatory) Vessel in the heat of a vapory Bath, in Saw-dust or minced straw, which done, put all in a Retort, and distil upon sand till it be dry, augmenting the fire towards the end, that the spirits of this subtil and acid Tartar may be joyned to the distilled Vinegar; calcine to whitenesse the remaining matter in the Retort, and add to it ℔ i j. more of ☿ very well depurated; put all these calcined salts in a Retort, and distil your Vinegar thereupon so often by reiterated cohobations in sand-fire, that the spirit of Vinegar may incorporate

porate and carry along with him the greateſt part of the fixed ſalt, which for the moſt part is not performed until the eleventh or twelfth cohobation, ſo ſhall you have a true alkalized Vinegar, fit to diſſolve in a very ſhort time all manner of ſtones and ſhels: as likewiſe to extract and penetrate the bodies of all Minerals and Metals; they that will be at the trouble to prepare it ſo; and uſe it dexterouſly, will find out more and more to how many rare effects this Spirit is conducing.

Another very ſubtil Spirit of Vinegar.

DISTIL in *B.M.* ℔. xv. of very good Vinegar well depurated, and extract ſhortly thereof about ℔ x ij. of phlegm, put the remainder in a Retort and diſtil upon ſand with a graduate fire until the remaining matter be very dry; then cohobate the ſame ſpirit drawn off upon his own feces four or five times; after which make a paſt of ℔ ℈. of the Chryſtals of tartar of the Vinegar, ʒ iiij. of Sal. ☿. with ℔ ℈. of Bolus reduced to powder, a little of very good diſtilled Vinegar; and having made this paſte into Pils of a fit bigneſſe to be put in a Retort of glaſſe or ſtone mettle, place it in a cloſe Reverbatory, and fit thereto the Recipient, wherein lyes the firſt diſtilled Vinegar joyn'd with its Chryſtals by cohobation, and give a gradual fire untill all the ſpirits are driven out by the ſtrong expreſſion of the fire: after all is cooled, open the Veſſels, and rectifie your diſtillation in a ſand-Furnace; and thus ſhall you obtain a ſpirit of Vinegar not inferiour to the foregoing: but contrariwiſe yet more ſubtil, and conſequently more capable of performing all the effects hoped for.

How to prepare the Chryſtals of Vinegar or its ſubtil Tartar:

EVaporate in the vaporors heat of *B. M.* xj. or L. pints of ſtrong Vinegar very pure and defecated, until it has attained a conſiſtence of decocted Honey: then put it in a cold place or Cellar to

to shute Chrystals, and draw after some time the Liquor which lyes under by inclination letting it run softly, until the Crystals be quite separated: the remaining thick and blackish liquor dissolve in acid phlegm of Vinegar; then strain it through a Hose to defecate it; then again evaporate the liquor strained in *B. M.* to the same consistence as you did before, and let it shute again Chrystals for a second time, and separate the superfluous residence fit for nothing else but to be calcined with Tartar, to draw the salt thereof; then put your Chrystals together and dissolve in a slow heat of Balneo in a sufficient quantity of good distilled Vinegar, filtrate the dissolution warm, then put it in the cold to shute Chrystals, and so continue this work of evaporating and chrystalizing: until you have extracted all the essential Salt; which you must dissolve, filtrate and chrystalize in this manner three or four times, that you may have it very clear and depurated: this Salt is useful to make the true Radical Vinegar; and moreover, it is a very pure and subtil Tartar, which may be given in broths to cleanse the stomach from viscous and clammy impurities lying in its bottom and about the sides of it, by which the appetite is called away; it is also good to open, disopilate and cleanse the passages of urine, which it provokes gently, as it doth sweat also: The Dosis is from ℈ß. to ℈ ij. and ʒ j.

Of Tartar, and the preparations extracted from it.

PARACELSUS and his followers have so much made mention of Tartar in their Writings, that it is enough to confound the mind of their Readers, because they make no distinction between microcosmical Tartar, Tartar of Aliment, and Tartar Remedy. We will then succinctly explain the difference which is between them, to ease the search and labour of the studious Son of Art.

Tartar in the *Paracelsian* Physick is called whatsoever is capable to coagulate in the form of a stone, or is already so coagulated; But nevertheless, by microcosmical Tartar, or that which is ingendred in man, called *Microcosm* or *little World*, is to be

understood a viscous and clammy matter, which by want of digestion is framed in our bodies, and has in it self an immediate or proximate vertue of harding and coagulating, and consequently of causing obstructions, by reason that it wants a fermentative Spirit, capable of driving them by the natural passages and emunctories, from the center of the body towards its circumference, and from thence to expel them sensibly or insensibly by the pores: the defect of transpiration being the cause of the most part of internal Diseases no lesse then external.

For the evils and accidents, whereof the Root or seminary lyes within our selves, ought not to be imputed to the vice of Aliments, as the most learned *Van Helmont* doth very well prove in his Tract entituled *Alimenta Tartari insontia*. Now the *Paracelsian* opinion is the cause why the name of Tartar has been given to the Terrestrial and essential Salt which is extracted from some Plants; whether it naturally separates its self from their Juyces, or whether it be performed by Art, we have declared above in the beginning of the Chapter of Vegetables, the manner of separating the Tartars or essential salts of Plants: but as we can but intellectually conceive the help of Reason and comparing things together, the manner of that which is separated naturally by its own internal working, we will declare our conceit thereof, agreeing with the most judicious Authors.

The Artist to apprehend and conceive the better the original of Tartar whereof we are to speak, ought to call to mind, that the Principles of things are but crude and undigested in their original, and as it were but crude and homogeneal in this disposition of their Chaos: but afterwards by maturation there is a separation made of the grosse parts from those that are more pure and subtil: the grosse parts naturally do encline to the elementary state which is aqueous and terrestrial; but those that are subtil do exalt, and to speak more properly, spiritualize themselves, by the power and strength of their internal Principle or *Archeus*, which contains in its self the ferment and Spirit, by whom they are also reduced to the other elementary state which is Aereous and fiery, that is to say, participating of the æthereal and Celestial nature. Which Philosophical consideration, if it may be suitable to any subject, it cannot be applyed more lawfully to any thing then to Wine:

for

for when the Must is newly drawn off from the Grape, it is a true Chaos, until the eternal *Archeus* or Principle hath raised up and excited the fermentative Spirit, which causes the separation of the subtil parts from the grosse, and ceases not from its work untill it has brought the substances into which it works to the highest pitch of their natural Predestination, which is the fiery and Celestial part of Wine: and that which is grosser, doth return as by a Reinundation to that aqueous, earthly and saline nature which creates Tartar, which is an essential, permanent and incorruptible Salt in its self, but on whom Art and fire may imprint several alterations, because it contains very Rare and remarkable Vertues, of near resemblance to the nature and Power of Spirits, by the help of its salt and sulphur, which it possesses abundantly. But let us now from this Theorical Speculation come to the practice by which we are instructed in the manner of purifying Tartar, its Distillation, Salsification, and the Extraction of the Tincture of the internal Salt of its sulphur.

The Purification of Tartar.

TARTAR may be purified by a simple washing of warm water to take away the salt and terrestrial dregs which it alwayes hath in its self, and by which it is ordinarily assisted and accompanied in its coagulation: To perform then this Purification, beat to pouder either German Tartar, or Tartar of *Montpellier*, and having put it in an earthen Pan, pour on it some water a little more then luke-warm, half a foot high, then stir it with a Pestle that the water may take the substance and muddinesse of the Tartar, then let the fallen parts settle again, and pour out the water by inclination, and reiterate three times this Lotion with warm water, and thrice with cold, and so shall you have a Tartar something pure, which you may use well enough in Decoctions, Infusions or Macerations where there shall be need, either for ordinary work or some prescription of the Physitians. But this way of Purifying is too course, and savours rather common and vulgar Pharmacy then Chymical, which ought totally

to separate purity from impurity: The Artist then shall thus proceed, , to make what they call *Inshops*, *Chrystals and Cremor Tartari*, which to speak properly, are nothing else but well purified Tartar, beat to subtil pouder ℔ xxx. or XL. of good ℥. well shining and glistering in the breaking thereof, compacted, Chrystalline and weighty: boyl ℔ CC. of Rain, or good and pure River water, in which throw the ℥ by degrees, and it will soon dissolve therein: then presently strain that Liquor through two great Hypocras baggs, hanging over some great Tub very well cleansed, and when all hath run stir continually the said Liquor with Pestles until it be totally cooled, then let it rest, and two hours after you shall find that the pure and finest Tartar shall be sunk in the bottom of the Tub in the form of an impalpable and shining Pouder, which may without scruple be used in stead of the Chrystal, or what improperly is called *Cremor Tartari*, because some have supposed that the crust which remains on the top of the Liquor after it is drawn, was of a more subtil quality then the Chrystals which are found in the bottom, or stick on the sides of the Vessel, though it be the same thing; since that crust or pretended *Cremor*, is nothing else but the coagulation of the purified Tartar in the superfices of the water by the cold ayre. But above all this, there is yet one stronger Reason, why this Tartar thus purified should be preferred to the Chrystals or *Cremor Tartari*, which is ordinarily found in the *Drug sters* and *Grocers* shops, which is that those who purifie the Tartar in places where it is plentiful and cheap, do put in the water which must dissolve in Quick-lime with their Tartar, and that for two reasons; the first, because the Tartar should sooner and more easily be dissolved; the second, that the Lime may precipitate to the bottom, and draw along with it self all the Feces and clammy viscosities which cause the impurity of Tartar, and hinder the Chrystals to become either so white or so pure; But in using this Method, they do not consider the great harm which may proceed, and proceeds from thence daily: for besides that time doth in some manner fix the essential salt of the Tartar, and makes it lesse easie to be dissolved in brothes and other Liquors, it doth besides imprint into it a noxious quality which offends the stomach, and heats extraordinarily the breast, and is pre-

prejudious to the whole habit of body of those that use often to take it, so that the good intention of Physitians is not followed: for whereas they intend to prescribe an Aperitive and Disopilative Remedy, it proves often to be coagulating and Fixative by reason of the Petrifick Idea which is unspeakable from the salt of Lime mixt and united with that of the Tartar. But this I only say by the by, that the Apothecaries may themselves take the pains to prepare their Remedies, whereof they are accountable unto God, the credit of Physitians, and to their Neighbour.

The *Vertues of this purified Tartar*, are first and chiefly to dissolve and attenuate the grosse and tartarous Humors, which cause the obstructions of the first Region of the Belly: wherefore it may be usefully administred also to open those of the Liver, Spleen, Mesentery, *Pancreas* and Kidneys; above all things it is to be recommended in Diseases proceeding from Melancholy, and all Hypocondrical fits and affections: All Authors seem to agree in affirming that it is an universal Digestive; and for this reason make it ever a fore-runner of Purgation, to attenuate and prepare that which by the Purgative must be evacuated. It is also a very convenient Remedy for all such as are naturally caustick and close in their bodies; for it will open and gently loose the Belly, without offending either the stomach or digestive Faculty; The Dosis is from ℈ j. to ʒ j. or i j. in broth, or some aperitive or digestive Decoction. But because this Remedy is destinated to open the obstructions of the Spleen and Liver, and that Iron or Steel, is one of the choisest Specificks which may be made use of for this purpose, Chymical Artists have found a way to unite and associate the Steel and Tartar together, by their Reciprocal action working one upon the other in their dissolution, which is thus performed.

To

To prepare the Martial or chalybeated Tartar.

℞ ℔ j. of purified Tartar in the manner as we just now have taught, with which you shall mix ℥ i j. of cleansed filings of Needles: boyl in an earthen glazed Pot ℔ viij. of Rain-water very clear, or rather distilled, and pour in it softly the mixture of Tartar and filings, and let them boyl together as long as you would to make a soft Egg, then run it through a woolen strainer, and agitate the Liquor until it be cooled; and you shall have a Pouder of Martial or Chalybeated Tartar of a greenish colour, and shining when dry, and without compare more aperitive then the purified Tartar which hath been described before: For it has in it the Vitriol of *Mars*, which the sharpnesse of the Tartar hath drawn as the greenish colour doth evidence: It is administred in the same Liquors, but the Dosis must be lesse: for the Dosis of this must not exceed ℈ ß. to 32. in all the Diseases and obstructions wherein we have said the other was useful.

The distillation of Tartar, and how to extract both the Spirit and the Oyl thereof.

℞ ℔ v j. of ♀ purified by dissolution and filtration, put them in a Glazen well luted Retort, then fit it in a close Reverberatory, and joyn to the neek of it a large Recipient, whose Joynts must be well luted with Saltedearth, or mixt with a little of the *caput mortuum* of *aquæ fortis*; let the Lute dry, and then apply a gradual fire, until you see white vapours begin to ascend, and red veines to wander about the inside of the Recipient; then encrease the fire and continue even with flame of a very dry wood, until the Recipient grows clear again of it self, in the greatest and intensest action of the fire: the Furnace and Vessels being cooled, take off gently by degrees the Lute from the Recipient, by pouring warm water upon it, then take away the Re-

Recipient, and separate the distilled matter, part whereof is aqueous, Mercurial, subtil and spirituous, of a sharp, biting and penetrating taste, which is a token of its volatile salt, and the rest a blackish and heavy Oyle of an Empyreumatical smell as well as the Spirit, having also a sharp and biting taste, though inflammable as other distilled Oyles, which shewes also that this Oyle contains in it self store of volatile salt which is not separated from its sulphur, by reason of the strict union between them both: This separation is performed in the same manner as we have related above. After this the Spirit must be rectified in ashes, with this Note, that as Tartar is a salt which has its original from Wine, so likewise the spirit it yields is of a very resembling nature: that is to say, that the spirit of *Tartar* is not of the nature of acid Spirits, which yield their spirit the last: but contrariwise, it has two kinds of spirits in it self, the best and noblest whereof ascends the first, and this is the volatile Spirit, the phlegm follows after; and for the last follows an acid or strong Spirit which hitherto hath found no great use in Physick. The Oyle may be kept without Rectifying to use externally: But if in case you will make it more Penetrative, more Dissolutive and Resolutive, you must also Rectifie it upon some of the remaining matter after Distillation, and you shall have an Oyl capable of producing such effects as we shall attribute unto it hereafter.

In the next place, you must joyn again what remains from the rectification of the Oyle of Tartar, to what is left in the Retort after distillation, and calcine it again in open fire in an earthen Pot not glazed, until all appears white, and this dissolve in warm water and make a Lye therewith, running it three or four times, until the water can attract no more of the vertue or taste thereof: then filtrate all your Elixivations and evaporate gently, without any violent ebullition, until the top of the Liquor begins to contract a skin; then move the remaining matter, and have a great care to gather all what you see stick in every part of the Vessel, and to hinder the coagulation thereof in the bottom of the Vessel, because it would prove very difficult to take it off afterwards: continue your care and work without interruption, until all be converted into a dry and white salt, which is the *true fixed salt of Tartar*, to be preserved in a very dry Bottle exactly stopt with

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a Cork dipt in wax, that it return not to a Liquor, which properly is called *Oleum tartari per deliquium*, being nothing else but the Liquor of the salt of Tartar dissolved, and according to our *Great Paracelsus*, the water or Liquor of Tartar. But when you have occasion to use either this Oyle of Tartar or dissolved Salt, you must let one half of it lye in an earthen or stone-metal Pan, this Salt being the most penetrative of all calcined salts or Alkali, penetrating even through glazed earthen Vessels: wherefore I have thought fit to give this warning, that the Artist may not be deceived herein. Some may perhaps wonder that we did prescribe above, to take well purified ☿ wherewith to make this Distillation; since all other Authors seem to be contented with Tartar as it comes from the Cask, provided it be pure and clean; whom we must satisfie, and shew that it is not without Reason and very good grounds that we have said it. We have shewed above why it was necessary to depurate the Tartar, by reason *viz.* of its Feces, and earth, and some other adventitious mixtures, which are ever fonnd in this matter. Now all these impurities are capable of being calcined in the distillation, and do communicate their ill taste and smell to the spirit of the Tartar, which commonly is attributed to the fire or Empyreuma: a reason why this Spirit is very little made use of internally, though one of the best Remedies in Physick. Let those whom this truth will not perswade, compare the penetrating and subtil taste of the purified spirit of Tartar with that which is not purified, and they will know, that with very good reason we have been obliged to correct and redresse this mistake, the cause sometimes of much more evil then is thought of, because these Heterogenities have in themselves some noxious quality, which not only communicates it self to the Spirit, but very intimately mixes with the salt, and imprints and stamps in it an evil Idea, which cannot be corrected in the preparation of Remedies which the Artist is obliged to make; and consequently may often cause very dangerous accidents, which will elude the guesse and suspition of the Physitian.

Now let us come to *the vertues of Spirit* ☿ its distilled and inflammable Oyle, its salt, Oyle *per deliquium*, or with it dissolved Salt.

This Spirit being prepared as we have taught, and rectified in

B. M. in a very clear Vessel, is one of the Noblest Remedies which Chymistry can yield: for it has the vertue and power to incise or cut, attenuate, resolve whatsoever doth cause any obstruction in the *Viscera*; it is moreover capable to penetrate into the most remote parts of the body, by reason of its great subtility: for it expels all superfluities in digestions, by Urine and by Sweat: wherefore it may with very good successe be given in Dropsies, Gouts, and all arthritical Diseases, Palsie, Scorbute, Measels, Itch, Scab, and scratches, and all contraction of Limbs: the Dosis is from ℈ß. to ℈ ij. and a whole dram, in broths, white Wine or some other appropriated Decoctions, according to the Disease, and the indication of the skilful and expert Physitian. We have said that a portion of the distilled Oyle could be kept without Rectification, and that not without reason: for this Oyle abounds with internal salt, which remains in the bottome whilest the Rectification proceeds: and this salt it is which by its active and penetrative vertue causes those noble effects which this Oyle doth produce, in the cure of the Scurf, Tetters, and corroding and sharp running Humors. For as we have said, that the volatile Salts bear an antipathy to sharp and corroding ones, by which both scurf and Tetters are produced, so is it likewise the volatile salt of the sulphur in the Oyle which kils the acidity or sharpnesse, dryes and restores the skin to its natural state; and this Oyle is not useful only to such a purpose, but even works miraculously in resolving Tophus's and knots about the Joynts of Gouty persons and infected with a touch of the Pox, provided they have been purged before with some good preparation of Mercury, joyned to a well corrected extract of *Coloquint.* The rectified Oyle is to be outwardly used, but with precaution and care, by reason of its penetrability and great activity: but it may be mixt in such Oyntments as shall be prepared for ordinary scabs, scabs called *Canine*, and all manner of Venerean scabs internally: It is exhibited for the wind-Colick in white Wine, and spirit of Elderberries, against fits suffocations of the Mother: The Dosis is from ij. drops to vj. The salt of Tartar is of it self a potent Agent, and which should produce unexpected effects, were it not so unpleasant to take, by reason of its lixivial and urinous taste: for it is the most subtil and penetrating of all the fixed salts, both used as a

Remedy, as also a very useful and convenient ingredient in the separation of several other excellent Medicines: they that will use it without correction, may administer it from gr. vj. to xxx. in Broths or Decoctions, to evacuate and expel by stool and Urine all such matter as causes the itching and all eruptions of the skin, scratches, itches, scurf; provided, that at the same time some Oyntment be made use of wherein is distilled oyle of Tartar, and a little salt of *Saturn*. But we will deliver the manner how to cleanse it and take away its ill taste, rendring it Purgative, which of it self will be a very good Remedy, and an Instrument besides for the performance of many noble operations in the hand of skilful and knowing Artists, who by meditation, study and labour shall attain to the mysteries which it possesses: The Oyle of *Tartar per deliquium*, is of wonderful effect in the extraction of all the purging Vegetables; For when the *Menstruums* that are employed therein are impregnated and acuated with a small proportion of this Liquor, they penetrate into the very center of Bodies, extract their vertues, and correct at the same time the noxious quality which may be in them, and that by means of the heavenly and Magical Fire, which the salt of Tartar has borrowed from the light and the Ayr. This Oyle may likewise be given internally in the same manner, and for the same diseases as the Salt; The Dosis is from iv. to xx. drops. It is also one of the principal Agents of a Chymical Laboratory to make Precipitations therewith, and to prepare the vitriolated Tartar.

To prepare the vitriolated Tartar, or Magistery thereof.

℞ ℔ j. of Oyle of ☽. *per deliquium* very clear and pure: Note that when the salt is very pure, and has been resolved in a clean place, add the Liquor well filtrated, that this Oyle is of a greenish colour: put it in a Cucurbit or Glasse-body of about a cubit high and of a narrow entrance: pour upon softly and drop by drop of Oyle of Vitriol, or the spirit thereof well Rectified, until all ebullition or noise doth cease, the weight of the oyle or spirit of Vitriol may be ſinted at ℔ ℈. or thereabout, but the best way

way is to proceed as we have said: then place a Still-head over the Cucurbit, and draw off all the moisture which swims above the Magistery, until it comes to a consistency of a pretty thick pap; this done, put it in a white or bottle metal earthen Vessel, and dry it wholly to the vapour of a boyling Bath, agitating and stirring continually the same with a Spatula of Glasse, not of Metal: for this salt would extract the taste and tincture thereof; Put this Magistery in a Glasse-Viol very exactly stopt: It is one of the best digestives can be given to prepare the Patients body to Purgation: for it dissolves all tartarous matters which are the cause of obstructions; above all, it is of singular efficacy against the splenetical and hypocondrical obstructions, and of the Meseraick veines, against all Aguish distempers, but chiefly fits of the Quartain; It provokes menstrual Purgations when suppressed, and accelerates them when Retarded.

How to prepare the ♃ ☿ *of Sennertus, or the Purgative salt of Tartar.*

℞ ℔ ij. of very pure and defecated salt of ☿. and put it in a Glass-Cucurbit; pour upon it 2 pints or ℔ iiij. of well dephlegmated still'd Vinegar, stir up the whole together until the salt be well dissolved; place your Cucurbit in ashes, and draw the moisture or liquor thereof, which shall come off tastlesse as Rain-water: then continue to distil softly your salt with pints of new distilled Vinegar, and to draw off the Vinegar on ashes so long until you shall find it to come off with the same strength as when you did pour it on; which will happen after you have proceeded thus about twenty times: the salt remaining after all this work is very black; but it has no more its lixivial, harsh, biting and urinous taste; but contrariwise a savour not unpleasant, participating of saltishnesse and acidity: the change which happens in the taste of this Salt proves the truth of what we have asserted above, that the acid substances and salts Alkali, convert one another in a neutral substance, which is no more either the one or the other, and yet possesses a more excellent and lesse hurtful vertue, then the bodies out of which they have been compounded, as it

evidently appears in the example of vitriolated Tartar; for the Oyle of Vitriol is a very ſtrong Corroſive, and as an all-conſuming fire, and the oyle of Tartar is of a ſharp, biting and urinous taſte, very unpleaſant, and nevertheleſſe the reſult of both makes a very pleaſing Magiſtery by its acidity, participating no more of the quality of either of the bodies whereof it is compounded, unleſs it be its penetrating, ſubtil and diſſolving quality: this appears moreover, in that the Vinegar loſes all its acidity, and turns to inſipid water, and this volatile acid ſalt of the Vinegar checks and turns the edge and ill taſte of the ſalt of Tartar, to make it become a very good Remedy; towards the laſt time that you draw off the Vinegar, you muſt drive this ſalt with a pretty ſtrong fire, that no moiſture may remain with it: diſſolve the ſame in alkohol of wine, and filtrate, to ſeparate from it the blackneſs it has contracted: then put it in *B. M.* and draw off again the ſpirit of Wine from it till it be dry, diſſolve, filtrate, and draw again until the 4th. time, but the 5th. time put your Veſſel in aſhes, and cohobate again the ſpirit of Wine thereon, and continue theſe cohobations, giving ſtill more and more a ſtronger fire towards the latter end, until the ſalt becomes white: then put it after in a moiſt and clean place in a Glaſs-veſſel, and it will eaſily diſſolve into a red Liquor, which is to be filtrated, and part of it kept in Liquor, and the other evaporated into ſalt, which muſt be dryed and put into a narrow-neck Viol, very well ſtopt, if you will prepare it without diſſolving. We cannot chuſe but recommend this Salt in the higheſt manner to all Practitioners of Phyſick, conſidering the wonderful effects it is able to produce; for it is beyond all Remedies, to open the obſtructions of all parts of the body, and to evacuate ſoftly all matters incumbering the functions of Nature; and chiefly in all Chronical diſeaſes and deſperate: for it purges ſoftly and without violence through all the Emunctories: The Doſis is from five grains to twenty if it be dry: or from ten drops to thirty, if diſſolved to Liquor; it is to be adminiſtred in Chicken broth or Veal boiled with Parſley and Scorzonera Roots, or in white Wine wherein Damask Raiſons have been ſteep'd, with a little quanity of good Cinnamon: the Remedy muſt be taken faſting in the morning, and if neceſſity does require it, it may be reiterated about five in the afternoon.

To

To prepare the Tincture of Tartar.

℞ ℔ j. of salt ℘, very pure, and having placed it in a *German* Crucible, which best resists the fire of a violent melting heat, put your Crucible in a Wind-furnace upon an earthen foot or brick; cover it with a cover made for the purpose, and fill up all over the Furnace with coals, and the fire being kindled, open the doors of the Wind-furnace successfully one after another, and place the Pipes or wind-drawers above the roof or vault of the Furnace, that the fire may be concentrated to melt the better this Salt, which requires a more violent and stronger heat then Gold: and when you shall perceive that the salt is fully melted, and flows as water amidst the flames, take away the cover and continue the fire until it has got a blewish colour, and begins also to grow red and greenish: for then is it a true sign that the internal sulphur of this admirable Salt is opened; and as it were drawn from its center by the extremity of the fires action; and therefore must you often take a tryal with an Iron Spatula or Slice well cleansed and dry, of the colour of the Salt; because if there did remain the least moisture in it, it would cause the salt to flye and break the Crucible, you must then be very careful to heat the slice before you put it in the melted salt; Then assoon as the Artist shall perceive by the colour, that the salt is sufficiently opened, let him throw it in a brazen Morter both warm and clean; otherwise the extream heat of the melted salt would crack it, and being coagulated beat the Masse into Pouder with a hot Pestle; and put the Pouder also in a heated and dry Matraff, and pour upon by little and little Alkohol of Wine, until it has attained to the height of four fingers above the Salt, and cover the Matraff with another smaller, the neck whereof may be inserted in the biggest about three inches: well lute the Joynts with a Swines bladder dipt in white of Eggs, and place your Matraff in his capsula upon sand already heated, and raise the fire gradually until the spirit of Wine begins to boyl; continue the fire in the same pitch three or four dayes, and the spirit of Wine shall come forth with an oriental Ruby-colour and yield

a pleasant and fragrant smell, like unto that of the flowred Vine: filtrate the Liquor and put in other in the room, and so continue till the Alkohol of Wine colours no longer; put all the filtrated Tinctures into a Cucurbit, and draw off again three parts of the Menstruum, and the remainder shall be a real and *true tincture of the first salt of Tartar*; the colour whereof proceeds from the internal sulphur of the said Salt, which doth communicate unto it very great and efficacious Vertues against several obstinate and as it were desperate Diseases: For this Tincture strengtheneth all the natural faculties, and sets them again in the just and true execution of their functions, whereof the malignitie & length of the disease had made them swerve: for it keeps the body soluble, provokes urine and sweat in great abundance; therefore its continued use doth wonderfully operate in all melancholick affections, hydocondrical and scorbutical diseases, Dropsies, and generally all obstructions of the Liver, Spleen, Mesentery, Pancreas and Meseraick veines: above all, it shews its vertue and its strength upon the bodies of those whose blood is infected in the Masse with Venerean impurities: for it doth not only strengthen the vital and animal faculties, which the venom of those impurities seises upon and destroyes by degres, but it hinders also the progress thereof, and rectifies the Masse, the masse of the blood, and frees it from those impure and noxious serosities which cause all ill symptomes and effects of this desperate and filthy Disease; it must be used for the most part during the space of a Philosophical moneth, which is forty dayes: The Dosis from iiij. to xx. drops in Broth, Wine or some convenient Decoction appropriated to the malady: But you must have a care above all things, not to mingle it with acid Liquors, because they would kill the volatile part thereof, by which the best effects are produced.

How

How to prepare the dissoluble Glasse of Tartar, *and to extract the Tincture thereof.*

WE have shewed in the foregoing operation the manner of extracting the central Sulphur of the Sal ☿, to whom we have assigned many noble Qualities: But we think it also necessary to evince, that salts Alkali are not only the dissolvents of Sulphurs, but also their Extractors: To illustrate this Assertion by a demonstrative Example; We will take the Calcination, vitrification and extraction of peble stones, by the help of Tartar and Alkohol of Wine. And we must let the Reader know, what kind of stones are to be chosen, which may yield the solar embryonated Sulphur contained in them, and when the salt draws to its self, to impart afterwards to the spirit of Wine, which is no small mysterie in Chymistry. To bring then this operation to pass, Take pebles out of Brooks, or Rivulets falling from Mountains, that are rocky and full of woods, and if it be possible where some adjacent ground may contain metallick veines, and where the waters and small Rivers may abound most with Trouts well spotted with red Purple spots, high in colour; for this will be an infallible sign, that the peble stones contained in those Brooks or neighbouring Grounds, contain in themselves embryonated Metals, which before and after Calcination begin to appear: before by external marks and streaks, which are red, green, blew, Purple veines, and mixt with some other colours arguing their metallick Tincture: and besides, because that even inwardly are not only found superficial spots and colours, but in some also are found small scales and grains of perfect and true Metal, holding proof as gold and silver upon the touch-stone, as I have oftentimes made the tryal my self upon stones which were brought from about *Cledan*.

To begin then this operation: Fill a great Crucible with such stones, and in a Wind-furnace bring them to a full redness; and being t[illegible] fire-red, throw them in a Bason half full of fresh water, by which means they become brickle and easie to be reduced to Pouder in a Morter; after which, you must grind them on a Por-

Porphurie Morter or Sea-ſcale — until it be reduced to Alkohol, or impalpable Pouder, which having well dryed, mix it in a hot Morter with five times as much of ſalt of Tartar, very pure and very dry; you muſt have at leaſt ℔ j. of this mixture in a great *German* Crucible, ſo capacious, as that the half or two of it may remain empty, to give way to the raiſing and boyling up of the matter; whilſt it is melting in the extream heat of the wind-Oven, your care alſo muſt be whileſt it runs in the Crucible, to draw off with the point of ſome Iron Inſtrument ſome of the melted matter, to try if it be reduced into the ſubſtance or form of a green, yellowiſh-glaſs, clear and tranſparent, but you muſt ſound the Crucible to the very bottom, to try alſo whether all the Pouder or duſt of the ſtones be melted, and united with the Salt; which if you find to be ſo, take off immediatly the Crucible from the fire, and throw the vitrified matter or Glaſs in a very hot Morter, and with a hot Peſtle alſo ſtirring it well, to reduce it to Pouder; for if you did give it the leaſt leiſure to cool, it would immediatly be reſolved into a viſcous or clammy Liquor, which ſhould ſhut up the Sulphur, and hinder that the Alkohol of Wine might not have its operation upon it; Heat the Matraſs be-you put in the duſt of this Reſoluble Glaſs, and pour thereon by degrees of very ſubtle ſpirit of Wine, until it be moiſtened and penetrated on all ſides; then pour of the ſame Spirit three or four fingers high above the matter: put the Veſſel in ſand already warm, and apply a competent fire to it to bring the Spirit to a ſimpering: the Veſſels muſt be covered and ſtopt with the ſame precautions as in the foregoing Tincture. The Extraction being made, and the Alkohol of Wine loaden with a fine red colour, draw it back and filtrate, then pour on new, and ſo continue to diſgeſt, extract, and filtrate until the Spirit takes no more colour. All theſe Tinctures joyn together, and draw back the Spirit in *B. M.* with a ſlow heat, until you ſee a very red Tincture, of a very good ſmell, and a fiery, penetrating and piercing taſte, then ceaſe the fire and draw the Tincture, which you are to put in a Viol of a very narrow neck, ſtopt if poſſible with a glazen ſtople exactly fitted, or with Cork ſteept in melted wax, and a double wet bladder over. This noble and excellent Tincture preſerves its colour & vertue, much longer then that which is extracted from

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meer salt of reverberated Tartar, because the salt hath drawn from the pebles their metallick Sulphur, which is of a solar nature: now the salt cannot retain this Sulphur when it is put to digest with pure spirit of Wine, because the Sulphur immediatly is communicated to the spirit of Wine, which is an æthereal and volatile Sulphur, which by the mutual analogy and sympathy they have together, extracts and draws it from the center of the least part of the salt. This Tincture hath a more diffuse and general vertue then the foregoing: therefore it may be exhibited not only in all diseases, for which we have mentioned the other to be fit and usefull, but it may moreover be administred in all intermittent Feavers, and chiefly in the Quartane; as also in all Chronical Diseases, which for the most part propagate themselves, by reason of the depravation of the internal Faculties, which this Remedy repaires insensibly, as by a Miracle. Above all, it is to be used in obstructions of the Kidneys and Bladder, whether proceeding from viscosity of clammy humors or sand: or whether also the Disease be occasioned by the imitation of the *Archeus* of those parts, which is immediatly allayed by the eradiation of the vertue of that solar Sulphur shining in this Tincture. We should never make an end, should we relate here of all what both antient and modern Authors have operated upon Tartar, or what our own experience hath drawn from it. It suffices that we have sufficiently enlightened the Artist, to guide himself both in the Theorical and practical Part of the preparation of this Noble and miraculous Salt; which conceals and contracts in it self the greatest part of the mysteries both of Art and Nature, unto which the Artist will never fail to attain, if he learneth to chuse well his Wine, Vinegar and Tartar, and applyes himself with industry to the Work and study of it: which two things are the main props of all Chymical Curiosity.

Of Opium, which is the condenſed juyce of Poppy.

OPIUM is one of the chief ſtumbling-ſtones of thoſe which are Sectators of the pure Galenical Phyſick, and have ever avoided to ſet their foot in the ſanctuary of Chymiſtry: which Averſion can only proceed of their want of knowledge in natural things, and a true experience of their Vertues: For *ut ignoti nulla cupido, ita nec cura*; and as nothing elſe but Nature it ſelf and natural Philoſophy, which is Chymiſtry, can have perſwaded by diligent ſearch and labour, and reiterated Experiments, that Opium is not to be feared nor rejected from amongſt Remedies, whether it be raw and crude as it is brought to us from the Eaſt, or prepared according to the Rules and Preſcriptions of Chymiſtry: So is it not to be wondred at, if they that call themſelves *Chriſtians*, and yet have never been ſearchers of Nature, do every day deſpiſe what they never knew, but by the Teaching and Reaſoning of ſome Profeſſor who has only read that Opium was unfit to be uſed, and that it was condemned by *Pliny* and by *Galen*; which is too ſufficient an Authority (in their Judgements) to be condemned by ſuch as openly profeſs and make it a ſcruple of Conſcience, not to follow blindly their Maſters; and ſwear as they ſay, *in verba Magiſtri*. But that which is yet much more to be wondred at, is, that they will by a ſoveraign and Magiſterial Authority eſtabliſh in their Hearers a Belief and Aſſent of their Doctrine, without being obliged to prove it by effects and real Demonſtration; and the worſt of all yet is, that they will treat injuriouſly ſuch as are not willing to condeſcend to their Opinion: Though theſe laſt, either Ancient or Modern Writers, are grounded upon the Baſis of true and ſolid Reaſon, whoſe right foundation is Experience. For it is not enough for a Chymical Philoſopher to ſay, that Opium may be prepared and corrected in ſuch a manner, as it may inoffenſively be inwardly taken: Since this were no better then tacitely to confeſs, that it is naught and dangerous of its own nature; But a true Naturaliſt muſt ſearch the reaſon of things in their very

very spring; to examine if that which produces the controverted quality, is of it self good or bad. Now all those that are verst in the History of Plants, know that the Poppy, from which Opium is taken, is a plant which in all times has had its use and credit in Physick; and likewise the Opium; as without controversie it is proved by the Syrups which are compounded therewith, by the seed put in Emulsions, and by the Opium it self, which without any due preparation, is used in the composition of Electuaries in all dispensatories, and whence they have the name of *Opiates*: Whence it is plain, that the Poppy hath at all times been allowed amongst the best Practitioners, in the number of Remedies. Which thing to examine a little more strictly, I shall entreat all impartial and unprejudicated Judges to consider, that the syrup of white Poppy, that of the red-flower Poppy, and all the kinds of *Diacodium*, are nothing else but Extracts, or Juyces of Poppy mixt with sugar to reduce them into Syrups, which are every day made use of in all kind of diseases, whereto they are proper, with very good successe: and whosoever will make a judicious and unprejudicated reflection upon Opium, which is the *Maslak* of the *Turks*, or the *Meconium* of Latins, shall find that whatsoever efficacy and vertue is in these two condensed Juyces, comes but from the same spring from which both the Syrups and *Diacodium* did originally derive theirs. For whether it be that the water draws the vertue of the heads of Poppy which contain its imperfect seed, and that this vertue be also concentrated in the Syrup: it is likewise the same vertue which is extracted from these heads of Poppy by their bare incision, which occasion those drops that by little and little are condensed, and yield that thick and condensated Juyce which is the true *Opium* or *Maslak of the Turks*. Or whether also this expression draws the vertue of the Juyce of Leaves or tender heads of Poppy, which make the *Meconium or grosser Opium*; We must acknowledge, that either the Poppy and its preparations are to be banisht from the use of Physick; or if the Decoctions, Syrups, and *Diacodium* continue to be in use, then the Opium or even the *Meconium* cannot be rejected, since they proceed from the same Plant: and that these Juyces thickned and condensated, have nothing else in themselves, but contractedly what the foresaid Remedies con-

tain and afford in a larger bulk and proportion of matter. But if any body would object, that the Decoction and Sugar only, take what is good in the Poppy, and that the hurtful part remains behind, we must have recourse to the anatomy of the Plant to answer this objection; and say, that this Plant is compounded of gross and subtil parts: that the gross are the herb and juyce which easily is drawn from it and in good quantity; that in this Juyce are invisibly contained the subtil parts, which are an external and material Sulphur, unseparably mixt with another internal Sulphur, and with volatile, mercurial and sulphureous Salt, which are folded in and shut up in the gross and tenacious Mass of the substance which constitutes the Opium, and hath much of gross salt and terrestrious or earthly parts in it self, but chiefly *Meconium*. Now as Poppy is not yet ripe nor well disgested when employed to make Syrups, Opium and *Meconium*, so as the sulphur cannot yet sufficiently be concentrated in the seed, to hinder the predominancy of the salt, which is so mixt with it as to be yet embryonated, and so dissolved and united to the water which is added in the composition of the Decoction, or the water of its own Juyce; an evident proof, that the same vertue which is diffused in the Decoction, whereof Syrups are made and all the kinds of *Diacodium*, is more contracted and united in the Juyce, which naturally comes forth out of the heads of Poppy whereof the Opium is made by Incisions, or extracted by expression, as the *Meconium* is. All this we have said above, tends only to shew, that it is a wrong and injury done to the Art, to use with Authority and great commendations those common Remedies which by coarse and rude preparations are taken from the Poppy, and for the most part distaste the Patient by their quantity and unpleasantnesse; and to forbid obstinately those which are invented by Chymical Physitians, who have moreover separated the purity from its impurity, and so judiciously with so much Art, have redressed and corrected all the defects which might be attributed to Opium; and that besides, they prescribe it in a very little Dosis and small proportion; they have so much altered the case and odour thereof, that those which without being acquainted with it, take upon themselves to traduce and cry it down, would be much put to it to know it, if laid before them without being told,

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or put in some suspition or guess thereof by having some small light from Chymistry, which might best of all teach them. But to add yet more weight to what we have said, let us join Experience to Ratiocination: for that true Touch-stone will teach us, that whole Nations use every day *Opium* or *Maslak* very pure and unmixt without interruption, for the richer sort, and *Meconium* for the meaner sort of people, and that without any previous preparation, and in a very excessive Dosis, since they take it from ℈ ℈. at least to ℥ j. wholly, without receiving thereby any hurt or prejudice, have only a kind of giddiness in the Head as if they were drunk; which hath made the proverbial Reproach, You have taken Opium: as if we should say amongst us, You are drunk. To confirm this Assertion, we have all the most authentick Records and famous Relations of those that have travelled in the *Indies* and the *Levant*; chiefly amongst the *Mahumetans*: who all believe that Opium doth raise their Spirits, makes them more couragious and bold, and causes them to undervalue dangers and perils. The *Indians* take it to hinder sadness, and prevent melancholly from seizing upon them; as also to be more enabled to satisfie longer the lust and luxurious inclination of the *Indian* women. It is true, that the same Authors do tell us, that if those that are not accustomed to it would at first undertake to use as much at once, as those that by custom have made it familiar to their nature, they may fall in very dangerous and sad accidents, and run even hazard of their lives: but that ought not to bring a prejudice and aspersion upon Opium to reject it absolutely, since the hurful quality with which it is upbraided, proceeds only from the excesse made by them that take it without having been acquainted with it before, and habituated their bodies to the same by little and little: just as if Wine should therefore be dis-esteemed, because some body may be disordered by it, either by an over-proportion of what he takes, or because he is altogether unacquainted with it. Do we not see that Tobacco either taken in smoak, chaw'd, or in sneezing-pouder, causes very ill and surprizing symptomes in all those which are not accustomed unto it, bringing a sudden giddiness upon them, vomiting, cold sweats, even as if they were at deaths-door; and yet nevertheless when they have made it habitual, some are so wedded to the use of it, that they can by no means be taken from it,

is, or deprived of that comfort. Therefore we must never rashly give our Judgement of the ill effects which are produced by the excessive use of any thing, otherwise we must condemn the best things that are sought for and appointed for the preservation of our life, witness this Axiom in Physick which saith, that *Omnis repletio mala, panis autem pessima*; and thus much had we to say concerning Opium, and those which daily make use thereof with very good successe in their practice, to master Diseases and correct their most dangerous and troublesome accidents. We will only add to this before we come to the practical part, a word very considerable; and it is this, That I believe to have found the reason why Opium doth not make so great an impression upon the Eastern people, according to my Judgement as upon *Europaans*: Because these drink Wine or some other fermented Liquor for the most part, such as are Cider, Beer, *&c.* and the others drink none but commonly water. Now the fermented Liquors do exalt the Narcotick and Soporifick sulphur of the Opium, and by the subtility of their spirits convey it into the very Veines and Arteries, where it makes, or is capable to make (I say Opium) many dangerous impressions, being taken in too great a Dosis; or not prepared with all the exactness acquired. I conclude then, this Theorical Discourse of Opium by the protestation I make, to have exposed none but of the best and most exact preparation, according to the prescription of the most learned and famous Practitioners of our Age, and that in greater quantity then any Apothecary of *France* since 30 years has done, without ever seeing any ill accident to happen contrariwise; I have seen so many, so admirable, and so laudible effects, that I will be ready all my life-time to acknowledge in thankfulnesse, and to praise those to whom I am obliged for the knowledge of this Heavenly Remedy: The preparation whereof followes, according as study, labour and experience have taught it me.

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The common preparation of Opium.

I Do not question, but some carping Critick will say, that I have omitted in the foregoing Discourse, the Dispute of Controversie ordinarily rais'd in the Schooles, between those that maintain Opium to be cold, because it was the opinion of ancient Physitians, and others, who affirm it to be hot: because their sense, and the experience of its effects, seem to force us to entertain this this opinion, and to assent unto Truth. We would have handled Question *pro* and *con*; had it not been that we profess Chymical Philosophy; whose prescription it is, we should attend the things and not the words, and not judge of the truth thereof by the several imaginary degrees of their qualities; but rather dive into the knowledge of the internal essence of mixts by their Anatomy, which gives a true light, and discovers unto us what Principle it is which predominates in natural bodies, that from thence we may fetch the true Indication of their peculiar proprieties, and the uses whereunto they ought to be applyed.

To perform this Creditably, we must begin in the choyce of Opium or *Meconium*; for it were pity the Artist should ill bestow his time and his materials: Therefore, he must have the capacity to judge betwixt good and bad ones, and the ability to discern between the sophisticated, adulterated, and that which is not legitimate and skilfully prepared; *Nam bonum à malo, falsum à vero discernere periti est Artificis.* But as the true and right *Maslak* of the *Turks* can but difficultly and rarely be met with, whose qualities are a very strong and unpleasant smell, of a yellow colour, inclining somewhat to the redness of Lions hair, very bitter, biting and fiery in the palate, and upon the Tongue, so that it seems to set it on a flame, being compacted and well united in a heap, as a small Cake consisting of many small grains of several colours, because in gathering the drops flowing from the Incision made in the Poppy-heads, there will ever some corn of the seed be mixed with the flowing Liquor: It it necessary we should give some notes of Direction to chuse the best and purest of that which is called

called *Meconium*, drawn by Expreſſion from the juyce of Poppy-heads bruiſed, or by the mixtue of the juyce of the leaves: it were to be wiſht, that thoſe from whom we have it, would be contented with this coarſe preparation without ſuper-adding other Juyces to encreaſe the Maſs: for the Cakes of Opium which are brought from *Natolia*, are ordinarily of the weight of ℥ iiij. or ℔ ℈. at the moſt, whereas thoſe that come from *Alexandria*, *Ægypt*, *Venice* and *Marſilia*, are for the moſt part of a pound weight, whereby it is eaſie to diſcover that thoſe who drive a trade of it, do encreaſe the weight thereof at leaſt of one half part.

The Sophiſtication of it is performed three ſeveral wayes: The firſt is, with juyce of Glaucium or Apple of Love; but this Cheat is eaſily diſcovered with diſſolving it in a little water, which immediatly turns yellow as if Saffron had been in it. The ſecond is done with juice of Endive and wild-Lettice, but this alſo is known, in that when you cut the Cakes of Opium or *Meconium*, the inſide is ruffer and leſs ſmooth, and has a more mixt odour, obſcurer and more difficult to be diſcerned. The third and laſt way of diſguiſe is done with Gum, which alſo is very eaſie to be diſcovered, for the Cake is more brickle and more ſhining; and moreover, this is the worſt ſort of all having much leſſe ſtrength and vertue. By which it may be evident, that the true notes of *Opium* can be no other then thoſe we have already aſſigned, except that the *Meconium* which is the moſt common ſort amongſt us, is more compact and united, more black and ſtrong in ſmell: but it is not ſo bitter, harſh and biting in the mouth, by reaſon of the other parts of the Poppy mixt with it, which are not yet exalted, nor their volatile ſalt concocted, as is the juice proceeding from the head alone, either by inciſions or Expreſſions. The Artiſt then having choſen his Opium ſuch as he ought to have, muſt cut it in very ſlender ſlices, which he ſhall ſprinkle in an Iron-pan with good Roſe-vinegar until the Opium be reduced to pap with the Vinegar, by agitating and ſtirring of it with an Iron-ſlice; then put the pan on a very ſmall fire, and ſo by degrees dry the Opium without encreaſing the fire to prevent burning, until it be wholly dry and be crumbled from its lump, and reduced to a pouder and making no more ſmoaks. This pure and ſingle operation produces two conſiderable effects: The firſt, that by its ſlow and moderate

rate exhalation and the continual agitation of its external sulphur, it drives away the impure and undigested Opium, by which all those disorders which commonly happen and are feared, be produced. The second is, that it corrects and fires in a manner the volatile salt of the same by the acid spirit of the Vinegar: and that moreover, it changes also the bitterness and the ill taste thereof: The Chymical Apothecary shall keep this Opium thus corrected in his shop, to use in the composition of all such ordinary Remedies when that Ingredient is required; as also to make therewith the most exact and Philosophical preparations, according to the prescription which we will give hereunder.

To make the Extract of plain Opium.

PUT in a Matrasse ℥ iiij. of prepared Opium, prepared after the way above related, in very small pouder, pouring upon good distilled Vinegar the height of four fingers: stir very well the same, and then put your Matrass to digest in sand or ashes to extract the Tincture of Opium, which will separate from its gross and earthly parts, wherein the greatest part of its impure and inquinated sulphur lies lurking; when the distilled Vinegar shall be well impregnated with the colour of the Opium, draw it off by Inclination and with a care of not troubling the grounds; then pour again new Vinegar, stir and extract, and so proceed until the spirit of Vinegar comes off no more coloured then when poured on: filtrate these Tinctures, and lay aside that which shall remain in the Bag, and dry it, to use the same as we shall immediatly direct. Evaporate softly in sand all the Tinctures to a consistence of Honey boyled into a thick Syrup, which you shall keep; then take the remainder of your Extraction of the Opium made with distilled Vinegar; which having dryed, put in a Matrass, and pour upon rectified spirit of Wine acuated with ℥ j. of the salt of Tartar of *Sennertus*, to every ℥ iiij. of Spirit, that this Menstruum thus animated, may extract the remaining internal sulphur of the Opium, which the spirit of Vinegar could not do, and may at the same time also digest its unripeness:

continue these extractions in *B. M.* until the spirit take no more of the colour; filtrate the Tinctures, and draw off again the spirit of Wine in the same Balneo (which will serve anew for like operations) to a consistency of decocted Honey; then join the two Extracts together, and go on in evaporating till they attain to the true consistency of a solid Extract which may be framed into Pills, so shall you have a Body of extract of Opium depurated and corrected, which will serve to make all the other compounded extracts of Opium, which by excellency are called *Laudanum*; as if one should say, a Remedy which cannot be exalted or praised enough, and exceeds even all kind of praise, as the Rare and admirable effects which it daily produces in the hands of the most skilfull and excellent Practitioners do sufficiently witness every day. This general Extract of Opium may already in a manner be called *Laudanum*, since it is the ground and foundation of all others, and that without any either danger or scruple it may be used in many Occurrences, chiefly when the Chymical Apothecary shall be yet unprovided of the other kinds of *Laudanum*, which are more exalted, and admit of some other Ingredients in their composition appropriated to the disease in hand, or intended for help or ease of some particular part of the body.

Before we attribute any vertue to this plain *Laudanum* or Extract of Opium, we are obliged to prove that it is not capable of any of those ill effects, which the most circumspect and lesse venturous are affraid will happen from the use of Opium: which ill effects are, as they say, that Opium suspends and doth suppresse the excretion of Excrements and stops the passages of Urine, benums and enervates the limbs, changes the natural complexion into a leaden colour of the face, causes cold sweats, short breath and difficult Respiration, and in progresse of time a perturbation of the Senses and Spirit, makes drowsie and stupifies all the animal and vital Faculties. But we have shewed that whole Nations make use of crude Opium without any Corrective, and yet never fall into any of those so decantated accidents, except giddinesse, whereof they are as easily freed after the first impression is past, as those that have been inebriated with Beer, Wine or *aqua vitæ*. Wherefore we may conclude with much more reason, that well depurated and well corrected Opium after the way we have taught,

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shall not be capable to produce any of the evil symptomes which commonly are feared from it, provided that those who shall prescribe it either to sound or diseased bodies, exceed not the judicious Dosis, which at first must ever be small, to avoid the surprisal of those accidents which might be occasioned by the too great quantity: And moreover, considering that it is ever easie to add, but very difficult, if not impossible to diminish it when once let down into the stomach, let this be said by the by upon the precautions of the Dosis, which ought to be from *gr.* j. to iiij. and vj *gr.* We add now the singular and noble Vertues wherewith this excellent Remedy is endowed: which are first to appease all irritations, intestine, seditious and violent commotions of the body, disquietings, rages, fury and madness of the *Archeus*, which is the principal Director of the Spirit of Life, and consequently of health and sickness; re-stablishing again peace and concord, and maintaining it between the Motor and motions of the Body: so that after it has softly appeased the pain and allayed the grief, it procures a soft and pleasant sleep, which restores nature to its self, and repaires the strength of weak Patients brought low and attenuated by reason of pain, disquiet and want of sleep, and so without doubt is at least half of the Cure of the Disease of what nature soever it be: for *somnus reparat vires, fessaque membra levat*, by which we may conclude, that, *Natura corroborata est omnium morborum medicatrix*, for which truly I can have a proof from *Paracelsus* out of the fifth book of his *Archidoxa*, in the Chapter where he treats of the *specifick Anodine*, of which we have been moved to speak by several causes, having had sometimes in hand such kind of Diseases, as all our Arcana's have failed us in the cure of them, except the only *specifick Anodine* which has produced wonderful effects, by us the lesse admired at, because we know that by the course and Law of Nature water does quench fire, and that in the same manner the *Anodine* extinguishes in all ages the pains of Diseases, and that for several Reasons which we now omit. For that which sleeps is at rest, naturally commits no fault: If then the *Paroxysme* is set asleep, it cannnt be felt, but if it be awaked his operation goes on and will be felt. And in this Remedy have we one comfort more, that sleep takes away and dispels much grief, pain and melancholy. But it is to be no-

ted here, that it is not neceſſary the man ſhould ſleep, but on the diſeaſe it ſelf; wherefore we frame a Specifick which encounters the diſeaſe alone, and combates not the whole man; as it muſt be underſtood of Feavers, where it is neceſſary to make uſe thereof; for are there things hurtful to the whole man and diviſible in the diſeaſed man: which makes us to ſet upon the diſeaſe, and ſo prepare the Specifick that it may have no operation upon the Body. Theſe are the words of that Great Philoſopher the wonderful *Paracelſus*, after which he delivers the preparation of *Laudanum*, in the manner which followeth.

Laudanum, or the ſpecifick Anodine of Paracelſus.

℞ Of corrected Opium ʒ j. Juyce of ſharp Orange and Quinces well depurated *ana* ʒ vj. Cinnament and Cloves *ana* ʒ ß. Beat all to pouder and mix it in a double Veſſel, and digeſt either in the Sun or Horſe-dung the ſpace of a moneth; this done, expreſſe the Species, and put the Liquor again in your double or circulary Veſſel, with addition of ℈ ß Musk, ℈ iij. Ambergreaſe, ʒ ß. Saffron, ℈ ß. Salt of Coral and as much of Pearls; put all this again to diſgeſt in the manner aforeſaid during one month; then opening the Veſſel expreſſe the Liquor and reduce it into a liquid Extract, to which you ſhall add towards the end ℈ j. ß. of Quinteſſence of Gold; then evaporate your matter til it comes to a fit conſiſtency to make Pills: The Doſis whereof is from *gr.* ß. to iij. or iiij. *gr.* Which is (ſaies he) the true Specifick Anodine, taking away and appeaſing all inward and outward pains, ſo that none of the members is ſenſible thereof. You ſee that *Paracelſus* doth make uſe of acid Liquors for the diſſolution and digeſtion of Opium, which is the Baſis & Ground of this admirable Remedy, to which he had recourſe in the moſt urgent and difficult Diſeaſes. I cannot but add here yet what he ſaies in praiſe of *Anodins* and Soporiferous Remedies in General, when he ſpeaks of the Embryonated Sulphur in the firſt Book of his Phyſick, or Treatiſe of natural things: What *Arcanum* ought the Phyſitian more earneſtly wiſh for, then that which may

may assuage all griefs, and allay all heats: for he that shall enjoy it shall be possessor of no lesse knowledge then *Apollo* himself, *Machaon* or *Podalyrius*, which is an Hyperbolical way of expression he has to extol the Somniferous Remedies or *Anodins*.

And though the foregoing *Laudanum* be indifferently fit to be used by either Sex: it is necessary nevertheless we should give a description of an *Hysterical Anodine* for such Women as are troubled with fits of the Mother, and wherein no Must must be mixt; for Ambergrease is not so hurtful and contrary to them, unless joined with Musk or Civet, though many are of a contrary perswasion. This kind of *Laudanum* is prepared as followeth.

Hysterical Laudanum for Womens use.

℞ ℥ ij. of Karabe or white Amber such as Beads use to be of to ℥ ℈. of very fine Myrrh ℥ j. of the inward and dissoluble substance of Castor; reduce all to pouder and make the Extract thereof in *B. M.* in a circulatory Vessel with alkalized spirit of Wine, and changing with new Menstruum so long that the Species remain without colour in the Vessel: then filtrate all the Tinctures and draw off your Spirit again in the vapor of Balneo till you have your Liquor in the consistency of a Syrup; which you are to circulate during the space of fifteen dayes with ℥ ij. of Spirit of ♀. drawn in the manner we shall teach when we come to speak of Mettals: draw off again the Spirit in ashes; then join to the remaining substance ℥ j. of extract of plain Opium, dissolved in ℥ iij. of juice of Orange well depurated; put it to evaporate on ashes in a slow fire until the whole be reduced to a solid Extract, that may be framed into Pills. The Masse or Body of your *Laudanum* of all kinds must be kept in a Bladder anointed with oyle or aromatical Essences, as Cloves, Cinnament, Nutmeg for the plain *Laudanum*, and that of *Paracelsus*, and with that Carabe or of Penny-royal for *hysterical Laudanum*: and put the Masse so folded in a tin or silver Box. This kind of *Laudanum* may freely and without scruple be administred to Women or Maids without any fear of provoking the fits: but contrariwise

this

this Remedy shall correct all the impurity and whatsoever is amisse in this part; it is also Specifick for either Sex against all diseases of the Brain proceeding from what cause soever: but principally it is very recommendable to remove the hurtful and sickly Idea's of Epilepticks, and hinder the accidents of Epilepsie caused by the rising of the Mother; and let no body fear in any wise that this Medicament should stop the lunary courses of Women or their purgations in Childbed; but to the contrary it will never fail to expel them, having first restored the natural functions and brought them again to their duty by procuring rest, having first allayed all griefs and conciliated sleep: but that which above all is surprising and lesse conceivable is, that the same Extract doth also without any danger and trouble stop the immoderate courses of Women, because they proceed for the most part from certain harsh and noxious Serosities which are by it composed, sweetned and tempered in such a manner, that this Remedy never disappoints the hope of the Physitian or expectation of the Patient. It is also of singular use in all other bloody Fluxes or Hæmorragies arising from what cause soever, as I am my self in several occurrences an eyewitnesse thereof. The Dosis is from *gr.* j. to *gr.* iiij. for the most. But you are to note that it will sooner operate dissolved in some Liquor, then exhibited in Pills.

Laudanum against Dysentery and all sort of Fluxes immoderate, as also against Agues.

℞ Root of Asclepias or Centauria Imperatoria or * Masterwort, Angelica, Carline or Zonera dryed in the shade, Zedoaria, Bistorta, or Snakeweed, Tormentil ℥ ij. Vipers flesh ℥ iij. Sanguis Draconis very fine, or in drops ʒ j. ß. Camphire ʒ i. Chincinna Rind and Misseltoe of Oak *ana* ℥ ß. Reduce all to pouders which digest in *B M.* in a double Vessel circulatory with Alkohol of Wine four fingers high: the Spirit being well tincted pour it out by inclination, and so continue your Extractions, untill all the Tincture and vertue of the Species be extracted; then strain and filtrate the Tinctures, adding thereto ℥ j. of plain extract

* Or false pellitory of Spain.

extract of Opium, ʒ j. extract of Saffron, ϑ iiij. of dissolved Magistery of red Coral, as much of Pearls, and ʒ ß. of very good Ambergrease, dissolved with ϑ ij. of oyle of Macis made by expression, united or incorporated to ʒ j. of fine Sugar in pouder: put all these in a Cucurbit to the vapour of Balneo, and having applyed a Head and exactly luted the joints, give a moderate fire to draw from it a Sudorifick, Cardiack and Alexiterial Spirit which has scarce its like: Then reduce by degrees the whole into a Masse which you shall keep for use in a Bladder anointed with oyle of Cloves. This *Laudanum* is a Treasure for such as shall have it in their possession in places where Dysentery, Lientery and malignant Fluxes shall rage, as it commonly doth in Armies. Moreover, it is a soveraign Cordial and preservative in all dangerous Agues, as well intermittent as continual, in immoderate watchings, importunate griefs and wearisome prickings of the Cramp, or Tenasmus. Those that shall make use of this noble Remedy must not fear to take of it before purging, upon pretence you should (as the Proverb saies) shut up the Wolf in the sheep-fold; for there must ever a greater care be had to ease the pains and procure the rest of the Patient, then to the malignity of what is peccant or defective in quality of quantity; considering that even after this the Patient undergoes more chearfully the trouble of purging, because he is refreshed with rest and his strength encreased. This *Laudanum* produces also wonderful effects in all Collicks in general, and particularly in that which is called *Convolvulus* or the twitching of the Guts, which is nothing else but a motion against the nature of the entrals carried upwards from the lower parts, whereas natural motion which is called *Peristatick* or consecutive, is performed from the upward parts tending downwards; and as the cause of the disease is only either an irritation of the Spirits, or the malignity of matters kept in, this Remecy cures both at the same time, though it seems incredible to the apprehensions of those who condemn this practice; *Sed canis allatrat lunæ, nec luna movetur.* It is also very useful and singular for all Feavers, because it brings their crisis by Sweat and Urines after rest; And moreover comforts and strengthens the Ventricle and digestive Faculty which alwayes in Fevers is depraved, & chiefly in Tertians, double-tertians, double-quartans, which often-

oftentimes are too lasting for poor Patients, and throws them often from one gulfe and danger into another; that is to say, from a Feaver into a Dropsie. The Dosis is from *gr.* j. to iiij. with observation ever to administer before it a Clyster made only with new stale or Urine, if the Patient be sick of a Feaver, and not to give any in the day of the Paroxysme or Aguish fit, unlesse it be in continual Feavers and in all the kinds of malignant ones, with this caution nevertheleſſe, that it must be before the fit seizes upon the Patient, if it be every day.

Of the Elaterium, or condensated juyce of wild Cucumber.

Elaterium is a very bitter Juice taken from the fruit of wild Cucumber, before it be broken and hath shed its seed, that is to say a little before it be ripe, which juice is afterwards evaporated and condensed in a thick Extract, which is said to be one of the juices which preserves it self the longest in its taste and vertue: for some are of opinion that it lasts above two years before it loses any of its Faculties. By that which hath been already said above touching the unripeneſſe of Opium, we may easily conjecture that this also is not without its defects, since it is drawn from a froth not yet brought to full perfection and maturity; and therefore that it is necessary to correct it if we will have it to produce some effect, not hurtful in respect of its purgative vertue which is very violent, insomuch that it is capable to cause abortion or miscarrying in women; but as this violence and its immaturity may be corrected, and that it is a good Remedy capable of producing many good effects, to evacuate Venerean Sweats, and Dropsical waters, we have thought fitting first to shew the way of purifying this condensed Juice; then in the second place, to teach how to make thereof a legitimate Extract, which may without any danger be made use of in many stubborn and obstinate diseases: this Remedy having in it self great plenty of volatile Salt, and a Sulphur which preserves its exemplum from corruption, communicating unto it a colliquative aud purgative vertue.

Cleansing

Cleansing and depuration of the Elaterium.

THE Artist must dissolve what quantity he pleases of this Juice in a sufficient quantity of phlegm of Vitriol sharpened with a portion of its acid Spirit; then digest them together the space of six weeks in the heat of Balneo; after this time strain and expresse the dissolution, then filtrate it to separate all the crasse and heterogeneal impurities; after this evaporate the filtration in ashes in a moderate fire, until it comes to the consistency of an Extract, which will be the depurated *Elaterium*, and in part corrected by reason of the acidity of Vitriol which has blunted the too active vertue thereof already, capable in this state to be an Ingredient in Venerean Pills, or pills for the Pox; if so be the bodies that are to be purged be very strong, and that some aromatical drugs be joined to it to prevent its hurtfulnesse to the stomach or the neighbouring parts. The Dosis is from *gr.* j. to vj. But we must shew another way better and more capable to act upon the sulphur of this Juice and its terrestrial salt, crude and undigested salt, to bring it to maturation, and make this Remedy more useful to such as may have need thereof: which is performed in the following manner.

How the Extract of Elaterium is to be made.

PUT at much as you will of depurated *Elaterium* in a double or circulatory Glasse-vessel, and pour upon of very pure spirit of Wine, acuated with ℈ j. of Salt of *Sennertus*, for each ℥ of Spirit till your Glasse be half full; then having luted it very exactly, place it in a vaporous Bathe in sawings of wood, or Sawdust of a moderate heat, during the space or three whole weeks; this time being over, open the Vessel and filtrate the Tincture, to which join ℈ j. of dissoluble Magistery of Coral, ℈ ß. of oyle of Nutmegs expressed and tempered with Sugar in pouder, this proportion to each ℥ j. of *Elaterium*; then draw back the Spi-

rit in a vaporous Bathe to a consistency of a soft Extract, which afterwards put in a wooden Bowl or white or gray earthen dish, and softly evaporate the same in ashes to the consistency of a masse fit to work into Pills, which are to be preserved in a Bladder anointed with oyle of Cloves. This Extract is a great and a very soveraign Remedy to evacuate all superfluous and malignant Serosities which do infect the sinews and membranous parts: wherefore it may be with very good successe administred in all diseases of the Joints, Atrophie's, Leucophlegmaty, Gout, Pox, Dropsie and all like affections: but chiefly when some excellent Arcanum is mixed therewith drawn from Mercury, as we shall hereafter teach the manner of it. The Dosis is from *gr.* ij. to xij. provided the Patient remember to take the evening of that day in which he is purg'd, a Julep with ℥ iiij. of water of the juice of Chicory, ℥ j. ß. of Syrup of Gillyflower, and v. or vj. drops of very good volatile Spirit of *Venus*.

Section IX.

Of Oyle.

THE Physitians which have written of Pharmacy, have ever made use of the bare name *of Oyle*, or common oyle, when they would denote that oyle which is drawn from Olives by expression; which name it may vindicate with a very good Title to its self, in regard it is not only of very great use in Physick outwardly applyed, but because also it is a good Aliment and Remedy inwardly applyed. And as this Section is dedicated to speak of Oyle, we will chuse none other but that which the Ancient and Modern Physitians have made use of; considering also that Chymistry works only upon natural products to correct their defects and exalt them in vertue; therefore we shall have nothing else to do here upon Oyle, then to separate some grosse and undigested moistness which hinders its penetration, and so to render it more subtil and more active: for oyle of Olive to speak properly, is nothing else but the imperfect and undigested Sul-

phur

phur of that fruit, which abounds with much volatile Salt mixt with a fat viscosity, as it appears by its congelation, it curdling in the cold, and its inflammation. We shall then only make two preparations thereof, which shall be a type and model whereby to work upon all other sorts of Oyle when the Artist hath a mind to depurate them, and render them more subtil and more penetrating. The first shall be that operation by which is made that oyle which is called *The Philosophers Oyle*, which operation is very suitable to the work: for he that was the first Inventer of it, could not be otherwise then very well acquainted with the Rarest secrets of the noblest Philosophy, having joined therein Practice to Theory, and left us as the fruits of his study and his work, the manner of making an Oyle, which is wonderful in its vertues. The second operation will be the manner of distilling common oyle, to render it more durable and lesse obnoxious to fuliginous emanations, that it may be more usefully employed to the service of those Lamps, with which Chymists are used to entertain the heat of their Lamp-furnace: as also to use upon several occasions where it may be serviceable, both for inward and outward diseases.

How the Oyle of Philosophers is to be prepared.

TAke old Tiles or Bricks, and having broken them into small pieces of the bigness of a Philberd, heat them glowing red in a Wind-furnace with coals, *stratum super stratum*, ordering it so that the first and last bed be of coals: and when they are come to the highest colour of redness, have a peuter or brasse Basen with a cover well fitted to shut it close and put out the flame, when the pieces of brick or tile shall be thrown glowing hot in the oyle, which you may take off about the quantity of ℔ v. or vj. of old clear oyle; these pieces of brick or tile must be taken with pincers, and one after another be put in the oyle, and the cover applyed to quench the flame which will rise, until all your oyle be spent and dried up: then grind to pouder these pieces so imbibed and impregnated with oyle, and mix to them equal weight of decrepitated Salt, or as much of the *caput mortuum* of *aqua fortis*, or Colchotar; then having put the matter in a well-luted Re-

tort in a close Reverberatory Furnace, fit it to a large Receiver also well luted; cover the Furnace, then give it fire by degrees, until the drops begin to follow one after another, and that the oyle comes into the Recipient in shapes of vapours and obscure clouds; then encrease it, and entertain it even with flame of very dry wood until the Recipient begins to grow clean of it self at which sign cease the fire and lett all cool: and the Vessels being open, you shall know that what was almost without odour and insipid has much altered its nature; for the volatile salt of the oyle is so much exalted and changed, that it is almost impossible to hold the Nose over the Recipient by reason of the subtil spirits of this Salt, which gives to this distilled oyle an unpleasant odour. The one half of the oyle may be laid aside without Rectifying, for it may be useful in many occurrences where there is no necessity to have it so subtil. Take afterwards the other half and mix it with common ashes or Colchotar until it be reduced to a paste which you shall model into Pills, and put into a Glasse Retort, whose neck inwardly must be very well cleansed; then place it in a Sand-Furnace with its Recipient, and give a gradual fire, continuing until you have drawn off all the Oyle which shall be very subtil and fluid, and penetrating with a wonderfull activity.

These two oyles are good applyed outwardly: but if you intend to use it inwardly, take ℔ ß. of Rectified oyle, and mix it with as much salt of Tartar, and ℔ ij. white Wine; put all this mixture into a low Cucurbit, where you must have a Head or Still very fitly and exactly jointed, and so likewise luted; and give it a convenient fire until all the vapours begin to rise, which will be mingled with oyle, water and spirit; continue your fire until no part of the oyl more shall ascend; then separate the remaining oyle in the Cucurbit, and add it to that of the first distillation which has not been rectified, so shall you have the *true Philisophers oyle* so called: and which being brought to this height and perfection of subtilty deserves well that appellation, by reason of its Rare Vertue and the noble effects it produces, both inwardly and outwardly.

The first Oyle drawn and not Rectified, doth dissolve, digest, mollifie and bring to maturation all schirrous and hard Tumors, and chiefly such as grow without pain; Resolves potently all flatuous & cold Oedema's or wateriſh swellings and all other hard and cold tumors

tumors, in whatsoever place of the body seated, peculiarly those that are about the joints, whose action they check and suspend. The second oyl which hath been rectified, is also very good to the same purpose, for it digests with much more speed: above all, it hath a wonderful operation to dissipate all Tophus's, Schirosities and Nodosities, and cold gout, mixt with a little spirit of salt, and very subtile spirit of wine. This mixture is also very salutiferous to all those that have any member fallen into Atrophy, or benummed with Palsey; for it doth insinuate it self into the parts, and consumes and dissipates the slime, which did hinder the illustration and flowing of the spirits upon the parts by their obstruction, or rather resuscitates life, and reanimates the spirits in the members already deprived of it, and as it were half dead. But there is no comparison between the first and second, and the third sort; for it is so subtile, that even as if it were light it self, it penetrates the parts in an instant; wherefore they that shall make use of it, must proceed with judgement, and observe the true proportion; for it it be inwardly administred against Plague, or wind Colick, the Dosis must non exceed eight drops at the most: and for the Plague it must be exhibited in the distillation of Roots of Lagworth or butter-bur with white wine; and for the Colick in Sassafras, distilled water; there must also a precaution be used, when it shall be outwardly applyed; for if it be used for the cold gout, there must be Camphire dissolved in it; and it must be applyed upon the part only with a feather, and the same not stroak'd above three times with it; But this is not yet the best use and talent of this oyl, which seems particularly to be dedicated to the Matrix: all the bad Symptoms and irritations whereof it doth allay, in case it be internally administred in Savine or *matricarial mother*, it removes all the obstructions thereof, drives away all impurities, if applyed to the neck of it, where it is immediately volatized, by reason of the opening of the Uterus or Womb, to expell thence whatsoever is hurtful: It may be made also to penetrate in the very body of the womb, with an instrument made for the purpose, having a channel or conduct-pipe proportioned to the neck of the Matrix; the end whereof must be very round, and perforated with many holes; and in the cavity of it, a round ball, (but opened also in the top, to contain the oyl, and exhale it)

it) which being exactly fitted to the pipe, may be conveigh'd by a screw, and made to ascend from the bottom by degrees, till it come to the top, where this subtile oyle will be volatiz'd by the heat of the Matrix working upon it, and thus receiving the vapours thereof, whereby all defects will be corrected: this discription will suffice for those that are acquainted with the mysteries of our Art; for to say more, would neither be necessary nor lawful. I shall end with only saying, That this Oyl matures and ripens, in a very short time, all kind of Abscesses, Botches and Boyls; but above all; the Pestilential sore, if it be outwardly applyed thereupon, at the same time that it is inwardly exhibited to the Patient, he being very carefully covered to be brought to sweat.

How the Oyl must be defecated.

MIX ℔ viij. of the Oyl very clear with ℔ ij. of salt ♀ in a glass retort; and being put in sand, distill it slowly with a gradual heat, until nothing more comes from it; then draw off the salt again from within the retort with warm water, filtrate and evaporate till it be dry, then in a Crucible make it glowing; and when it shall almost be cooled again, grind it to pouder in a warm mortar, and mix it again in the retort with the Oyl already dissolved, and draw off again upon sand as before, which you must reiterate to a third time, to have a very subtile oyl, and lasting to the Lamp, not easie to be put out, if you have only care of the weak, yielding a less thick and black smoak, and by consequence less soot; but it is not only fit for those purposes, but moreover very good to resolve and mollifie, as the foregoing oyl, to which in a manner it may be substituted, when there shall be any need of it for external applications or outward griefs, in delicate and squeamish Patients, which are not capable to bear the unpleasant smell of the Philosophers oyl; but it is not so penetrating and so efficacious. It may also be used in the boyling of Plaisters and Oyntments, because it doth not partake any more of this excrementitious moisture, which doth, for the most part, cause the putrefaction and colliquation frequent in wounds and ulcers.

SECTION

Section X.

Of Gummy Drops or Resins.

Gummy drops or Resins are substances proceeding from fat and oleaginous vegetables, and coming forth out of the same either spontaneously and naturally, or after some incision made in the plant; their consistency is various; for some are soft, and others hard; the soft are all kinds of Turpentine, and soft pitch or tar; the hard are, *gum. Elemi*, *Anima*, *tacamacha*, *olibanum*, or Frankincense, and all other the like kinds. We will give two examples of the manner of distilling; the one of soft or liquid Resin, the other of solid; which shall be common Turpentine, or Venice and *Gum. Elemi*; that by the manner of Working upon these, the Artist may be instructed how to proceed upon all others.

Of the Distillation of Common Turpentine.

We rather chuse to take Common Turpentine, then a more subtile kind, because this in a manner is more natural, and more fully possesses the mercurial and balsamick parts, then the other sorts: It is this which *Paracelsus* calls *Resina de botin*; and though some are of Opinion that it is inferior, and yields in vertue to that of *Cyprus* or *Venice*, we are nevertheless of another judgement; for although the other be clearer and more pure, this hath, notwithstanding, some volatile mercurial salt, which is not abundantly found in others; the process thereof working upon it, is as followeth. Put lbvi. of Common Turpentine, which is the gum of the Larix tree or shrub, in a great and capacious retort of glass, in which the two third parts must remain void of matter or thereabouts, because the heat causes the Turpentine to rise, and so if less crouded, might run in the body out of the neck of the retort, instead of rising in cloud and vapours as it ought to do: which to procure, you must put in the empty space of the retort above the Turpentine, a good handful of Flax or Tow, that it might hinder the ebullition and rising of the matter: Put your re-

tort in ſand, and having fitted it to a receiver, whoſe joynts are to be luted with paper and meal-pap, give it firſt a ſlow fire, until the drops of the acide and mercurial ſpirit begin to fall, and keep it in this tune, until you perceive that the ethereal and ſubtile oyl begins to drop, and a ſmall cloudy and white vapour begins to appear, and condenſe it ſelf into a ſubtile oyl in the recipient; then increaſe the fire by little and little, until the drops and white cloud do ceaſe, which is a Token that the yellow will quickly follow; wherefore then change your Recipient, that you may have all theſe ſubſtances ſevered: Continue your fire increaſing, until the falling drops begin to be of a very deep yellow; which when you ſee, change again your Recipient, and give the laſt degree of fire, that all the body of the Turpentine may riſe into vapours, which will condenſe into a balſamick oyl of a tenacious and ſlow ſubſtance, and as red as blood; ſo ſhall you have wrought all the ſubſtance of this Reſin in four ſeveral liquors differing not in colour only, but alſo in vertue; for there is an aqueous liquor ſwimming above the ethereal and ſubtile oyl, which is commonly called *Spirit of Turpentine*, but improperly; for Chymiſts do never call ſpirit, whatſoever is fat, unctious and inflammable: this ſpirit is nothing elſe properly, but the volatile and mercurial ſalt of Turpentine; for it is acide and ſharp, and a philoſophical diſſolvent of Chryſtals, Stones and Shells, as ſome will have; but as there are many others, which in worth and vertue for this purpoſe challenge the precedency of it, we are not of their opinion, but we may nevertheleſs ſay in truth, that this ſpirit deſerves ſome kind of eſteem, by reaſon of its balſamick aſtriction, which doth no hurt or prejudice to the nervous and membranous parts, as all other acide or ſharp ſpirits, not partaking of this balſamick vertue, do: for though the Dogmaticks think to correct Turpentine with their pretended lotion: the truth is, doing thus, they take away from it all the pureſt of its deterſive and mundifying faculty: for as the ethereal and ſubtile oyl which Turpentine contains in it ſelf, doth lenifie, and ſweetens by its balſamick quality, ſo likewiſe doth at the ſame time that ſubtile and deterſive ſalt, mundifying ſtrongly, [and being, as it were, a precurſor to the other, which ſweetens and tempers that, which the firſt had as it were irritated. Thence muſt the Artiſt conclude, that this ſpirit is good and uſeful to cleanſe the

the viscosities, impurities, and other ill dispositions of the lungs, ureteries, spermatick vessels, and kernels of the *prostatæ* and *paraſtatæ*, when any irritation of those parts doth happen, or any other unclean matter lies lurking in the sinuosities and secret corners of those parts, which can neither be removed nor corrected by the help of mundifying and balsamical remedies, capable of keeping and preserving their strength without any alteration, to conveigh it along with themselves into the parts which are in need of it; for we must make a general note of very great importance for that part of Physick, which is to take indication of the effects of Remedies, chiefly of those that are to be imployed for the diseases of the kidneys and bladder; for all those Medicaments which are endowed with a sulphureous, balsamick and volatile salt, preserve their inviolable vertue in the digestion it self, and carry it even into the diseased parts, as the odour and smell of the urine doth witness, no less then the colour, by which it evidently appears, that no ill alteration is made by it; but that contrariwise, the Remedy hath overcome and had the victory, since it hath passed through so many places without suffering corruption; but instead thereof, hath rather advanced to some a greater degree of perfection by natural heat: For the Urine of such as have taken Turpentine, or its ethereal oyl, hath an evident smell of Violet or Iris root: and to give a more convincing proof thereof, you must know, that it is not the Turpentine only which produces this good and pleasant smell: for the Nutmeg, Macis, Cloves, juniper berries, Parsly, Fennel, dock-roots or carrots, Parsnips, do all communicate the same smell of Violet to Urine, by reason of their balsamick and sulphureous volatile vertue, which is exalted and improved by the spirit and salt of the urine; a mystery not worthy of small consideration for such as will take the pains to examine Remedies by the effects of natural digestions, to know how far may extend the sphere of their activity. But that which is yet more to be wondred at, is, that Turpentine dissolved in a Glyster, by the vertue of its ethereal oyl, penetrats thorow all the membranous and nervous parts, where it imprints the character of its own vertue, and forces an assent to this truth by the pleasant smell it leaves in the Urine, by which it appears, that there is no danger to administer Turpentine, or any remedies in the

compoſition whereof it enters to wounded perſons, either by the mouth or by glyſters, becauſe the effect thereof can never be but very ſucceſſful and redound to the good of the Patient, and reputation of the Phyſitian or Surgeon; it muſt alſo be acknowledged, that as thoſe ſubſtances which exalt themſelves into a good ſmell, give a teſtimony thereby of the good they are capable to do: ſo contrariwiſe, thoſe who degenerate into an ill ſmell, and diſturb the Oeconomy of the kidneys and bladder, ſhow that they have ſome ill quality in themſelves, which is to be ſhunned, as much as the other embraced and put in uſe. We thought our ſelves obliged to ſay this, that thoſe who are ever in fear of hot or cold qualities, without examining the ſpecifick vertue of the mixt, they will imploy, may more and more ſhake off and root out their prejudicate opinions.

The vertue of the ethereal oyl of Turpentine, called commonly, but improperly, *eſſence or ſpirit of Turpentine is great*: for it ſubtilly penetrates, cuts, reſolves, and attenuates the muſcilagineous and tartarous viſcoſities of the kidneyes and bladder, and provokes urine: it is alſo ſingular againſt the Cough, and other affections of the Lungs, proceeding from ſome tartarous matter, againſt obſtructions of the ſpleen and mother, againſt ſtrangury and difficulty of urine, to expell the ſand in kidneys or bladder, againſt Gonorrheas, and finally againſt ulcers of the neck of the bladder, and all the other parts of generation being infected with the venerosity of Venerean diſeaſes; the Doſis is from iv. drops to xx. in appropriated liquours.

The yellow oyle, and balſom, which is nothing elſe but the red oyle, differ not very much in vertue, therefore they may either joyntly or ſeverally be applied; for they do heat, attenuate, mundify and conſolidate equally; which makes them very uſefull and fit to be imployed with very good ſucceſſe for reſtoring members benummed or contracted by cold and froſt, for ſchirrous tumors; old running and rotten ſores, gangreen, chil-blanes, whoſe ſores it cures and conſolidates ſpeedily and perfectly, but the balſom ſooner then the oyle.

But becauſe the Æthereal oyle which is drawn from common Turpentine is not ſo ſubtile, nor pleaſing to the ſmel or taſt, as that which is diſtilled from the Venetian in a cucurbite, we muſt teach how

how the Artist shall well and exactly perform this operation. To this end must he take ℔ viij. of Venice Turpentine of the cleerest, most florid and odoriferous: for all these markes betoken that it is new, and consequently better; put it then in the cucurbit or glasse body with one head; and poure upon it 12. pints of rose water and viij. pints of white wine, adding thereto xxx. lemons cut in thin slices, then cover your vessel and give a fire of the tenor of that with which you distill Aqua vitæ, and thus with one operation shall you perform 3. things: for in the first place you shall draw an ethereal very subtile oyle, and of great efficacy, and fragrous smell: secondly you shall have a very excellent diuretical spirit: and in the third place a water wich may be used to administer the oyle in it, being first mixt with a litle sugar in powder, and may be used in the same distillation. I do not question but that many will say that this is a very chargeable way of procuring oyle of Turpentine, and that so much trouble is needlesse, since one pound of it may be had cheaper then Venice Turpentine does cost. But let those that be of this opinion consult their own reason, and consider the smell and vertue of the one and the other; let them make trial thereof, and they will then perceive the difference between both: therefore I exhort the Chymical Apothecary never to regard cost or labour, because either of these two spared will load his conscience, or lessen his reputation. Our Artist then to proceed, must be carefull to change the recipient, when there shall be about ℔ iv. or v. of liquor in it, to save the trouble of rectifying the spirit; and the distillation being ended, and the vessels cooled, he will finde the masse of Colophonie in the bottom of it, which is nothing else then the body of the Turpentine deprived of its ethereal oyle; it must be slowly melted in water, to straine it afterwards through a cloth or tamy, to purifie and sever it from the slices of Lemon. And as Colophony is nothing but a portion of the resin, so may it lawfully challenge the same vertues, except that it is not so penetrating or active; for it heats and dries, agglutinates and consolidates, and as it easily melts and incorporates with unctuous and fat substances, so is the principal use of it to bear a part in the composition of plaisters and salves; it may also be us'd in Opiat's instead of decocted Turpentine: but I rather advise that Turpentine should be us'd, which

has neither been boyled nor distilled, that the balsamick faculty thereof may be in it still.

How Gum Elemy is to be distilled.

THAT which in the shops is called gum Elemy, is the drop or resin of a kind of Cedar which growes in Ethiopia: the best is that which is of clear and whitish colour, mixt with some smal yellow parts or streaks, reduced into a masse, and being made to burn or flame, yeilds a smel which is not unpleasant. You must beate your gum Elemy into powder, and mix with 3. parts of pounded bricks and 1. of decrepitated salt, and put all in a retort, which must be placed in a reverberatory close furnace, upon an earthen pot-cover turned upside down, with a litle sand on it, then fit to it exactly a receiver, and give it a gradual fire, untill it yeilds no more oyle, a part of which may be kept without rectifying: but distill the other mixt with iij. p. of decrepitated salt, and make your rectification of it in a retort, in sand. Either of these two oyls is not to be taken inwardly; but they are specifick and singular for all diseases and griefs of sinewes, cheifly against palsy and contraction of nerves, which renders the parts lame and useless. They attenuate, resolve and dissipate all catarrhous, flatuous, and dolorifick matter; for this Gum is very balsamick. Upon the same manner and method may be distilled the oyle Tacamalaca, Animæ, and Caranna, because all these rootes come very near to that of Elemy.

Section. XI.

Of gum resins, &c.

GUM resines participate and come near the nature of gums, in that they are nothing else but the drop of certain trees, and may with great ease be dissolved in oyle, and in water also, but more difficultly, because they participate more of

of the sulphureous oyly and inflammable substance, then of the saline which is the sooneſt dissoluble in water. They that come near this category or are in it, are Camphir, Mastick, Ladanum, Benjuin, Styrax, myrrhe, and others which it would be needesse here to rehearse: we will then declare a method of the work that may be made upon the cheif and most usefull of them.

Gummes so properly called, are nothing else but concrete liquors easily dissolved in water or other wateriſh and moist menstruums, as wine and vinegar: they are of 2. kinds: the first do consist of a volatile salt, predominant and somewhat sulphureous, and of a gummy viscous and clamy juice, proceeding from plants, shrubs and feculaceous trees, as Ammoniak, Galbanum, Opopanax, Euphorbium, Sagapenum, Assa fætida, and several others: the second are purely gummous and muscilagineous, proceeding also from some plants and fruit trees, as gum Arabick, gum of plum and cherry trees, and Tragacinth: these cannot suffer distillation, having none or litle of salt and sulphur in themselves.

The distillation of Ladanum.

THOUGH this gum be not much in use, yet it has many excellent proprieties, and I can say confidently, that it is but want of having made the anatomy of it, and of experience, that it has been so much neglected: for it is impossible that those that are better acquainted with it should not make use of it: it is a gum resin gathered upon the leaves of a shrub called *Cistus Ledon*; the best is that which is of a blackish green, easy to crumble, and yet as easily made into pills, working it between the fingers, inflammable, and yeilding a sweet and pleasant smel in the burning. But there is this considerable in it, that though Ladanum be inflammable, yet will it not easily mix with oyles or other fat and unctuous substances: their use is that it abounds with volatile salt, and a portion of herbaceous extract which hinders its union and causes it to crumble: and this is a note of its principal vertue, because this sulphureous salt ascends in the distillation and is turned into an oyle, which is a specifick for many diseases; it is thus prepared.

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℞. ℔. 1. Ladanum made in rolls, and not of that which is in masse or lump, powder it and mix with ℔ iij. of Bol, reduced in Lump with Aquæ vitæ; work all this into pellets, which after they are gently dried, put in a retort, and place it in sand, joining to it a fit recipient well luted; then give a gradual fire, and continue it till all the liquor be come forth; and the vessels being cooled, take out what you find in the recipient, and sever the oyle from the spirit by a funnel, and keep it for use; you may give from ij. drops of the oyle and xij. of the spirit, in a litle warm wine, to open and attenuate the grosse matters whereby catharr's are generated: it is also a commendable remedy against Dysentery: but it is a true specifick to allay the fits and irritations of the Mother, if the same dosis be administred in mguwort or mother-wort water, or penny-royal.

How to work upon Benjuin.

BENJUIN is one of the best and nobleſt gums which is found in the Kingdome of vegetables, as much for its sweet and pleasant smel, which outwardly is used in perfumes, as principally for the essential vertues it possesses in it self, proceeding from the abundance of volatile sulphureous salt, whereof we shall give an evident proof by the following operations: for it might very well be said, to speak properly of Benjuin, that it is a dry balsom; it is brought from *Samaria* and *Sion*, and grows on tal trees whereof in convenient time the rind is opened, to give way to this precious gum; the best is that which in some kinde is transparent, mixt with white granes and streaks, in a yellowish red masse or lump, apt to crumble, not very heavy, melting easily, and of a very sweet and pleasant odour. We shall give the process of the following operations upon it for the satisfaction of the Artist, *viz.* Of drawing the tincture Magistery, flowres, oyle, manna or Crystal, and Mercurial spirit, and that balsom or grosse oyle of it.

To

To make the tincture and Magistery of Benjuin.

℞ ℥ ii. BENJUIN of the best note, reduce it to a very subtile powder, which being searced through a silke Tamy that all the heterogeneous substances may be separated, put this powder in a Matrass and poure upon it ℥vi. of Alkohal of wine prepared upon salt of ♀ because if there was the least of phlegm mingled with it, the operation might be checkt thereby: agitate nimbly the matter and keep the matresse in a litle of lukewarm water, and the Benjuin will dissolve in a very short time, which is an infallible argument to prove that this resine containes a very pure and subtile sulphureous volatile salt: for if it held a grosse and unctuos sulphur, the Alkohal of wine could make but a simple extraction of it, and not an intire and perfect dissolution: if it also did participate of a grosse and earthly muscilage, it would by no means hold proportion nor agree in matter with the cleanlinesse and subtilty of our vital spirit, neither with that of the spirit of wine. For as the remedies extracted from Benjuin are made use of for the diseases of the breast and lungs, it must follow of all necessity, that the matter whereof they are extracted is composed of very subtile, volatile and balsamick parts, that they may be guided and appropriated by the help of the Archeus to the disgestions of the diseased parts, *servata & illibata sua virtutis potestate.* The dissolution which shall be red and transparent, must be filtrated in a very dry Vial: for if there was the least moisture or aquosity, it would instantly turn the tincture into white, and precipitate it to a Magistery. Keep half of the tincture in a vial by it self, which must be very well stopt, to use upon occasion. But if you will have very well depurated Benjuin, precipitate the other part of the dissolution in very cleer common water; and when you have drawn off the spirit of wine again, in a small cucurbit in the vapour of Balneo, the Magistery will be left in the bottom, then draw off the water by inclination, and wash this pure Benjuin with rose water, and dry it softly; we will give it the name of *Magistery*, though somewhat improperly, because many Authors have so. The Tincture is not much more properly

perly so named; for it is, to say truth, but a dissolution: the vertue whereof is nevertheless encreased, by reason of the excellency and nobleness of the Menstruum; wherefore it may lawfully be used both inwardly and outwardly. Outwardly applyed, it is a wonderful Cosmetick, clensing the skin both of the hands and face beyond any other, taking away all spots, dries pimples in the face, and takes them away, as all other tumours, buds or redneſſes in the skin, resolving patiently all harsh and malignant serosities which the outward air hinders from transpiring, because the face is not covered as are the other parts of the body; and the matter being thus kept in betwen the flesh and skin, it causes those several defects of it. To make a right use of this Tincture, apply it towards bed-time upon all the places where you find need, and the next day wash the place with Barley-water wherein Veal hath boiled, which you shall turn to a milk colour, with some few drops of the Tincture of Benjuin, and then sweep either face or hands (as you have applyed it) with a very dry and soft linnen cloth. But besides this outward use in repairing such defects of the skin, if after being raised, you use at any time washing with the white water made by this Tincture, it will prevent for the future all pimples, raising of the skin, or redness which often happens by ill preparation of the soap-ball, and the lixivial salt, which has ever something of fieryness that enters in the composition of it. Inwardly it may be given for Asthma's and Short-breath; and to physical persons, or such as are troubled with old Coughs, from ij. drops to x. or xij. in a new raw egg, or a spoonful of Syrup of Hyssop, made after the description which we have given above; it may be given in the morning fasting, and the evening two hours before supper. As for the Magistery, it may also be administred in new laid eggs, or some pectoral Conserve, from iv. grains to xv. and xx. for those which are offended by the smell and taste of spirit of wine: It may also be mixed in Electuaries and Tablets; they that will make good washing-balls, and such as may never endanger by any ill accident the skin of those they will trim, must prepare and wash carefully their soap, to divest it from the ill quality of the lixivial salt, and leave in it only the mundifying and absterſive vertue; and when it is brought to that pass, wash it, and feed it a good while with tincture of Benjuin,

adding

adding thereto ʒ ſ. of the Magiſtery to each pound of ſoap; after which they ſhall frame their balls of the bigneſs of ʒij. and let them dry ſoftly; add if they are pleaſed to add a little of Musk and amber-greece, they may boaſt to have waſhing-balls better for the perfume and ſweetneſs, and more uſeful for preſerving and cleanſing the skin both of face and hands, then thoſe of Bolonia ſo much accounted of.

To make the Flowers of Benjuin.

AS Benjuin Flowers are excellent in their Vertue, ſo muſt an Artiſt be careful to beſtow upon them a good preparation: for which reaſon, we ſhall demonſtrate two ways thereof: The firſt more plain, becauſe it may be done at all times, as neceſſity ſhall require. The ſecond to be reſerv'd, when we ſhall treat of the *Diſtillation of Benjuin*. As for this firſt manner, take only a good *Germane Crucible*, round and ſomething high, wherein put ʒij. of Bnjuin reduced to pouder, place it in ſand upon a Capſula, and cover it with a long ſharp cap of a good double blew paper, ſtrong and well ſtiffened, the ſaid cap being proportionated in its baſis to the orifice or mouth of the Crucible: After this, give your fire by degree, and when you perceive the vapours of the Benjuin beginning to riſe, take away the ſaid cap, and put a new one of the ſame matter and proportion in the room, that you may have time to take away with a feather the flowers ſublimated in the firſt, and loſe not thoſe which ſhall riſe while the Crucible ſhall remain uncovered; and this work continue till all the volatile ſulphureous ſalt of the Benjuin be ſublimated in flowers; they are to be given from three grains to half a ſcruple in the ſame manner, and for the ſame diſeaſes, as the tincture and magiſtery: it is by this operation that our Artiſt ſhall clearly know, that Benjuin poſſeſſes a volatile ſulphureous Salt, very ſubtile and penetrating: for as ſoon as there is heat enough to drive it out from its body, it invades the noſe, eyes and breſt, which it irritates in ſuch a wiſe, as to provoke ſneeſing, tears and coughing, by reaſon of that ſpirituous and ſubtile quickneſs of the ſalt, wherein lies all the power and activity of the Benjuin.

The Distillation of it.

Yields many fine preparations at once, provided the Artist be skilful and vigilant, and not sparing of what is useful and necessary to do it punctually and to the purpose; for the Chymical Apothecary must not entertain a false perswasion, as many have done, and do yet at this day, that it is enough to take the bottom and dregs of the Drugsters-box, to perform his operation withal, being a very great absurdity to yield to this perswasion; considering, that besides that the drugs can never give what they have not, because the salt and spirit lies ever hidden in the purest part; it should moreover run this hazard, that all the vertue and goodness thereof might be overcome and absorbed by the heterogenity of the impure: They then that will duly quit themselves of their duty in the profession of Spagyrical Pharmacy, must have as great a regard in the well chusing of their Stuffs, as if they were to work their Master-piece; because that besides they should lose the distillable matter, they would also trifle away their time, and spend it vainly with their fire and vessels: Let this be said once for all by the by, but chiefly in this place, where it is absolutely required, that the matter we work upon be cleanly, that something analogous may also come forth out of the same: for in the first place there will be drawn a spirit of wine, impregnated with a portion of the volatile, sulphureous and spiritual salt of the Bejuin. Secondly, There shall come forth the purest of the said volatile salt, which will cleave to the neck of the retort: And in the third place, a fat and butyrous matter; which is nothing else but the grossest part of the salt and sulphur. Fourthly, There shall distill from it some small quantity of Mercurial acid spirit. Fifthly, A little of yellow oyl of Hyacinth colour, of a very good smell, and finally at the giving of the last fire, there will come forth a Balsome somewhat blackish in colour.

To perform this ample distillation artificially and methodically, chuse ℔ j. of the most pure and excellent Benjuin, reduce it to pouder, and put it to digest in a double or circulatory vessel in the vapour of Balneo with ℔ iv. of Alcohol of Wine, during the space of five natural dayes; which elapsed, pour all in a great glass retort; in which you shall put ℔ j. of pure and clean sand, and

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lbs. of scales of iron, such as they fall from the Anvil, all these matters not filling above a third part of the vessel, which must have a long and broad neck, and the Orifice of a Thumb-Diameter, then place it in ashes mixt with sand, fitting to it a middle size recipient dry and clean; the joints of which will be sufficiently luted with plain bladder steeped in water, that it may be removed with more ease when you are obliged to change your recipient: all these circumstances being exactly observed, give the fire slowly by degrees, so as the drops may follow slowly on the other without heating the recipient, and having a care not to make more haste; otherwise you should ruine all your work; for as our experienced *Paracelsus* saith, *Omnis præcipitatio a Diabolo*: above all things then, our Artist must be patient and judicious, unless he will be compell'd to be so to his cost and confusion after this due warning: and when he shall guess that all the spirit of wine is almost all come forth, he must have a particular care of encreasing gently the fire, and taking notice when the flowers or crystal shall begin to coagulate themselves in the neck of the retort, to change then the recipient which must not be luted, because it must oft be taken of either, to take away the flowers and crystals which are gathered there, or to draw them with a stick, made for the purpose, from the neck of the retort, lest they should stop it altogether, which would cause the breaking of the retort, the vapours having no free passage left to come forth: when all the first flowers, which are the whitest and subtilest, shall be drawn off, and the butyrous substance begins to appear, then must you again lute the retort to your recipient with a bladder, and increase a little the fire, that all the acid and mercurial liquor may follow the butter; that done, change again your Recipient, to receive the true Benjuin oyl, which will be of a yellow colour, somewhat resembling Hyacinth, but there will be but very little of it, and of a fragrant odour: the Artist therefore must take care to observe the change of colour: for where the drops appear red, it is the true instant of time to substitute a new Recipient, to receive a thick and dark Balsom by the last action and expression of the fire. It remains only now to say something of the uses and vertues of the several substances, which the Benjuin doth furnish us with in this distillation: and to begin by the spirit, we say that the

the same alone, without mixture or adding any more of our gum resin above described, may serve for a very excellent Cosmetick, because already filled and impregnated with part of the volatile salt, which is properly the substance in which the detersive, mundifying and resolutive strength and faculty of the Benjuin is placed; it hath even a more penetrating vertue then the tincture, and that because the tincture is laden with the unctuous body of the Benjuin, which stops the pores, and dryes the skin. This spirit is also more potent and capable to draw the true tincture of Benjuin: but not of corporeal or unprepared Benjuin, but of that which is devested of its subtile and gross oyl, and its acid spirit: for you must take ʒij. of the flowers crystals of Benjuin, and ʒs. of the butyrous matter, which must be put in a double or digesting vessel, pouring upon ʒiij. of the aforesaid spirit, and so let them digest some space of time together, and the spirit shall be tinged with a yellow colour, which will be nothing else but the extract and addition of the volatile salt and sulphur graduated and exalted to the highest degree of their perfection: filtrate the liquor, and you shall find in the bottom of the vessel, a white gum, which may be of very good use in perfumes. This tincture hath in a Compendium all the noble vertues of the Benjuin: the Dosis is from two drops to xij. in sassafras water, Syrup of Hyssop, or some Conserve in Bolus, for all diseases and griefs of the brest above rehearsed. But as we promised above, that we would here exhibit the method to make Benjuin Flowers in greater quantity and less time, then those which may be made by sublimation in the Crucible, we will teach how to perform it; and it is only thus: Dissolve ʒj. of the first butter of Benjuin, and of the whitest, which immediately follows the crystals or flowers in boyling water, and filtrate very quickly the liquor through gray paper, and the flowers will instantly be coagulated, even under the hand: then draw back again the whitish water by inclination, and let it settle, and you shall have in the bottom a magistery of no less efficacy, then that which is made by precipitation of the Tincture, or gross dissolution: let the flowers dry, and the magistery slowly and leisurely between the double paper, and keep it for use. The crystals which are properly the flowers and volatile salt of the Benjuin, are sudorifick, and a great specifick against the great

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Pox, if it be given from vj. gr. to xx. in a glass of tincture of sassafras made with white wine, or in a glass of decoction of *salsaperilla*, *china & guajacum rind.* for it is a searcher, which in an interim penetrates the whole body; it may also be exhibited in a less Dosis, as the first sublimated flowers: the oyl is an excellent vulnerary, and noble perfume. The blackish balsom which is clammy and viscous, is a great Mundifier of ulcers, wherefore it may very conveniently be mixt with oyntments and plaisters: some mix it amongst *Peruvian* Balsom, to falsifie and encrease its quantity; and it is one of the falsifications of most difficult discovery; The Benjuin yields so little of an acid spirit, that it is not worthy mentioning its use; nevertheless it may be applyed to the same purposes, as we have said above, the spirit of Turpentine would serve: they that are moved with a curiosity to make an excellent mixture of unctious perfume for skins and gloves, may dissolue butter of Benjuin, and some part of the flowers in oyl of Ben. it will make a very good and fit body to receive the Musc, Ambergreece and Civet, according to the proportion they will allow, and the strength of sent they intend to give to their skins.

To prepare an excellent Angelical Water, and the Mass or Past, which is called the Spanish Past.

℞ ℥iv. OF very pure Benjuin, ℥j. of Styrax in drops, ℥j. of good Cloves, ʒij. of Ambergreese, ℥j. of Levantine Musk, and ℈j. of very fine Civet; grind and beat all to a very subtile pouder in a Marble Mortar; add to it the superficial and subtile rind of xij. Citrons or Lemons, and put all in a double or digestive vessel, and pour on it ℔ j. s. of very good Rosewater, and as much Muscat Wine very clear, or some other white Wine clear, odoriferous and quick; cover your vessel with its blind head, and place it in *B.M.* giving a fire of digestion for viij. days, if it be winter; or expose the same vessel in the reverberation of the Solar rayes, if summer: then opening your vessel, put aside the water which you shall find coloured, and of a very excellent odour to perfume Table-linnen, for the use of day or night, as also

alſo to make a vaporous Caſſolet, by exhaling a little of the ſame water in the place appointed to eat, ſleep, or entertain company at your choice. But you muſt heat the Maſs of Paſt which is ſetled in the bottom, to malax and work it together with your hands anointed with Orange or Jelſemin oyl, or Orange-flower, Cloves, Cinnament, according as they that will make uſe of it, are better pleaſed with either of theſe ſmells: for in this reſpect the capriccio's and humours are as various, as in matters of taſte: there may alſo (if it be for a ſick body) a reſpect be had to the intention of the Phyſitian, and that of the Patient, becauſe the ſame ſmells will reſtore and comfort the one, & offend the other, and chiefly among women; therefore you may herein uſe your own diſcretion, and therefore as well add as diminiſh of your own Ingredients, according to the neceſſity and circumſtances. The maſs being thus by malaxarion rendred ſoft and tractable, you may frame it into braceles ſmelling or ſweet paſts, or perpetual Caſſolets, which are made in the manner following: Have a ſilver Box with a double bortom, the one diſtant from the other the thickneſs of a thumb, let there be within or without the box a channel or pipe running through the ſecond bottom, that you may inject ſuch water as you think fit, in the voide ſpace which is between the two bottoms. This Box thus framed, muſt be filled with the Paſt or Odoriferous maſs, the height of a thumb; then ſhut it up with a cover fitted to it in a convexe figure or dome-like, boren with holes all about to tranſmit the vaporous perfume and exhalation the eaſier: and when you will ſet this Caſſolet to work, fit the bottom with Roſe-water, Wine, or Plain water, according as your deſign is either ſtrongly or ſoftly to affect the ſmell, and thus ſet on a moderate fire, which will act ſlowly upon the perfumed Maſs, and raiſe by little and little its pleaſant fragrancy, gently, and without interruption; you may alſo diſſolve, in all kind of performances which you will make of this paſt in oyl of Ben. giving it ſuch a colour as you ſhall like beſt, as alſo encreaſe or leſſen the ſtrength and ſweetneſs of the perfume, more or leſs, according as you ſhall make your mixture. Let no body think, we run here out of our Text, in teaching the Doſis or mixture of perfumes, but be perſwaded rather, that they are abſolutely eſſential to our Treatiſe, ſince there happen

pen many accidents in the life of man, to which no remedy can be applyed but by the smell, so that this example which we have given of preparing one, which is both pleasant and useful, may be a rule and a pattern to prepare those which shall only be intended for physical use, and the help of sick Patients.

Of Camphire.

MAny have thought Camphire to be a bituminous substance; but they that have more truly writ concerning their *Indian* Travels in the East Country and *China*, do teach us, that it is a resinous drop or gum; the best kind whereof comes from *Borneo*; and that which follows in goodness, from the kingdom of *China*, and the Province of *Chineseo*, distilling from a great tree somewhat like unto our Wall-nut in the body or stock, whereof it gathers to a head. The *Indian* Physitians are not of the opinion of those that fear the use thereof, by reason of the cold quality which is attributed to it; for they use it with very great success, as a true divine remedy; and certainly we must acknowledge Camphire to be one of the most wonderful productions of nature, and the neareſt of all resembling light; for as we have often said, that the volatile Salt is the last fold and cover that wraps the spirit, and that spirit is nothing else but a concretion of light, and light nothing else but an invisible fire, and a true emanation of the Divinity it self; so can we say, that Camphire is the only natural production, wherein the hand of nature has more excellently discovered one of its noblest operations, in separating a pure, volatile, sulphureous salt from a substance which seems to be altogether uncapable thereof; and what is more to be wondred at, is, that the skill of the most knowing Artist cannot imitate but at a very great distance this natural preparation; since the most perfect master-pieces of their Art, are only volatile salts, which for the most part they compare to Camphire, when they think to have brought them to the highest piece of their perfection, but they never come near to the subtilty, quickness, transparency and whiteness of this unparallel'd mixt, nature it seems intending to have it self alone all the glory of its perfection, nobleness and vertue: for when ever Chymical Artists have endeavoured

endeavoured to raise and exalt this gum to an oyl, or some other analogical liquor, it has ever returned to a body again, vanisht away, or lost the purest or noblest part of its strength or efficacy; we must then rather set here as admirers, then operators, since there is nothing in this substance to be corrected, and that Camphire of it self is sufficiently pure, subtile and volatile, to be reduced from power into act, without vainly endeavouring by an ignorant and proud temerity to correct a thing which God hath created, and nature produced with so many perfections. To prove our Assertion, it will be necessary to give here the character and notes of true Camphire, teach one of the noblest uses of it, and make some observations thereupon, before we come to any of the true operations usually made upon this noble Resin: the Camphire then ought to be very white, transparent as crystal, very pure, without spot and mixture of any adventitious substance, of a quick and penetrating smell, crumbling betwixt the fingers, and almost not to be quenched whence once kindled; for it burns in the water it self: and to discover the better, if it be sophisticated, have a Rye-loaf coming just from the Oven, open it, and make a hole in the middle, in which put a piece of Camphire of the bigness of a Walnut, then clap the pieces again close together, and let it so stand a while warm, and this tryal will evidently make appear the truth of the substance or sophistication; for if the Camphire be pure, it will all melt and vanish away; but if mixt with any heterogeneous matter, it will burn; or to speak more properly, the Camphire will vanish away, and the gross matter which did falsifie it, shall appear in substance whole in the bread, and as it were roasted and dryed up: but to declare yet more evidently the volatile quality of this mixt, and its subtile and penetrative vertue, we must say that it is an approved remedy against Tertian Agues, if in a knot of Taffeta you put some of the purest about the neck of the patient from ℈s. to ℈iv. according to age, letting the same hang upon the brest, towards the upper Orifice of the stomack, where the first sensations of joy or grief are raised: The knot must be worn nine days, without intermission, and the ninth day thrown, without examing what remains in, in a running water, and that without omitting any of these circumstances, if you look for a recovery.

But

But some may perhaps object, that this number of nine is superstitious, as also the condition not to look in the knot, and likewise to throw it in running water: To which we answer, That all these observations are necessary, purely physical and sutable to the nature of the Remedy and disease; for though Camphire be very volatile, yet must there be a more violent heat then that of man to volatilize it under the space of nine days: and it is requisite it should be volatiliz'd to produce its effect, which is performed by the smell of the Patient, who breaths and draws it continually, by which means this volatile Salt makes an impression upon the natural spirits, which drive away by degrees by a sensible transpiration or insensible, or by urine, the ferment of the Ague, and by this slow operation destroyes the action and violence thereof: As for not looking in the knot, and throwing of it into running water, it is an observation depending on a higher and more abstruse Philosophy, which shall tell you that as the Camphire hath blotted out, and defaced the Character and Idea of the Ague by the irradiation of its magnetical vertue, so hath the spirit of life imprinted the Character and Idea of the disease in the knot whence the remedy did flow, and therefore must this Idea be removed as far as is possible from the formerly sick person, lest the irradiation and flowing of the subtile spirits, which do continually proceed from their bodies, may cause the said spirits to be touched again, and infected by the venom and contagion of the Idea of the sickness, which the water carries away, and destroyes, and overcomes in such a manner that the Patient becomes wholly freed and exempted from it without any fear of Relapse; for there is no body can be ignorant, that a Candle newly put out, can easily be kindled again, if another burning be brought near unto it, though kept at some distance, and not touching it with her flame; the same will happen to them that shall have the curiosity to look into the knot, after they have removed it from their neck, and have neglected to throw it at the same instant in the running water. We might also find another Reason in the strength of imagination working in the Patient; but though that may do very much, it would be needless, since we shall evidence hereafter, that Remedies prepared out of Camphire, work the same effect when taken inwardly.

We must come now to the necessary marks, for proof of what we have said above : For the tryal of Camphire in new Rye-bread, and the cure of the Tertian Ague, are infallible signs of its subtility and quick penetration , whereby it appears that those that believe it to be cold, are possessed with a false and vain Philosophy, taken from old Authors who had no skill or knowledge thereof , further then what a hear-say could suggest them, wherein they are followed by their disciples: But, say they, Camphire cannot be otherwise then cold , because it hinders generation, and doth even hinder erection, and all other irritations necessary to the act of it. But suppose it to be as true as it is false , it doth not follow therefore that Camphire should be cold: and granting that any body making a tryal thereof, and by long use of it both inwardly and outwardly, that effect of impotency and barrenness should follow in him : it would much rather be an argument of its heat , and of the subtile quickness of its volatile sulphureous Salt, keeping still the pores open, and continually resolving either sensibly or insensibly the spirituous exhalations , which are absolutely necessary to the act of generation and conception : the old *Romans* knew better then these Chimerical Philosophers, that those substances which have a quick and penetrating smell do enervate, since by one of their Laws of the XII. Tables, they did forbid their Soldiers, *Mentham in bello nec edere nec cedere.* Is it not also a daily experiment, that *Agnus Castus* and Rew decrease the seed, hinder erection and the heats of lust , by the same reason as Camphire , though held by every body for hot remedies ? which are proof more then invincible of the weakness of this insipid Doctrine , which always cleaves to the appearances and outward effects of things, without reflecting and turning the edge of their speculation upon the true cause. Chymistry is only capable of this noble and discerning knowledge ; upon which ground Chymical Physitians have found it expedient to make use of Champhire in pestilential and malignant diseases, as also in Agues , whether they administer it inwardly, or apply it outwardly in Epithems and Frontals. But above all things, it is used with a wonderful success in Suffocations and Firs of the Mother, if you burn ℈j. or ℥ß. even to a ℥j. in a glasse of balm water, or for want of it, in plain water, by which it appears evidently , that it is the

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meer vertue of Camphire which produces the effect. We would not forbear to clear this truth by this our Narrative, to remove the scruple of those who fear to make use of Camphire; for as I am very well perswaded of its real vertue by experience, I thought my self obliged to recommend the use thereof, that the publick may not be frustrated of the good and advantage it may receive by it. When we have said, that our Artist could not much operate upon Camphire without destroying it, we have said truth; for he can add nothing to its perfection, and can but waste much of its substance, always useful and full of vertue: there is nevertheless some little operation necessary to reduce it into liquor, and mix it indivisibly with other substances, which cannot easily keep it, unless you proceed in your work with circumspection and method; and because some hitherto have thought it impossible to reduce the substance of it into oyl, we will show nevertheless that *Labor improbus omnia vincit*; but it shall yield but a little quantity and proportion. We will propound two examples, the one of Camphire oyl without addition of other oyl; the other with addition of two necessary oyls which will increase more and more its vertue.

How to work the plain oyl of Camphire.

℞ ℔s. OF Camphire reduced to pouder, and mix it with ℔ ȷs. of Bol. then put this mixture in a glasse retort, and distill in sand with a well graduated fire, and the Camphire will come forth in the form of Butter. Take of this butyrous substance, and mix it with its double weight of Tartar very well calcinated; put this mixture in a Cucurbite, and pour upon it spirit of Wine, the height of three or four fingers, and distill it in B.M. with all requisite precautions. But above all things, you must have a carefull eye to observe when the Camphire shall begin to sublimate: for as soon as you see it appear in the still head, take away the fire, and let the vessels cool: But the spirit of wine you shall find in the Recipient in a narrow neck bottle, and pour upon distilled rain-water, till you see the mixture of both turn as white as milk; so the spirit of Wine being weakened by the mixture of water, you shall perceive the Oyl of Camphire, which was in-

incordorated and united to this ethereal spirit, to swim over the liquor. Continue in the same manner to pour spirit of Wine upon the matter remaining in the Cucurbite, and distill with the same circumspection as before, until no more of the oyl doth separate and rise above the spirit of Wine and rain-water mixed. You may keep of this spirit of Wine impregnated with the oyl of Camphire; for it is the true Camphorated spirit of Wine, and not that wherein Camphire hath meerly been dissolved. There is most commonly but the eight part of Camphire converted into oyl: This oyl is an excellent Remedy, for it resists putrefaction and venoms; wherefore it may be exhibited in Plagues, malignant diseases, and continual or intermittent Feavers: The Dosis is from one drop to six in some appropriated liquor: the camphorated spirit of Wine, is impregnated with the same vertues, but the Dosis must be bigger; for it may be given from ℈ s. to ʒ j. inwardly; and the outward use is no way less wonderful: for the oyl and spirit are good to stop the Gangreen, & appease the toothach, as likewise to allay the grief of the Gout, particularly Sciatick. Note also, that you must not lose the spirit of wine mixt with the stilled rain-water, but draw it off by distillation in B.M. since it may be used again, either for this same operation, or for some others: you must not neither lose the salt of Tartar which remains in the Cucurbite, dissolve it only with warm water, filtrate, evaporate and dry it, to use it to all other purposes as before:

The manner of preparing compounded oyl of Camphire.

PUT in a Matrass about lib. j. of spirit of Niter, ʒvj. of Camphire; stop the Matrass with another, that the neck of one may get into the other; lute the joints with bladder and whites of eggs, then put it to digest in the vapour of Balneo, until the Camphire be resolved into an oyl which shall swim above the spirit, then separate this oyl, and mix it with ʒiv. of rectified oyl of Amber, and as much juniper oyl; digest them together that they may unite, then distill in ashes by a retort three times consecutively; after which rectifie upon Choliotar of Vitriol, until the oyl comes forth clear, depurated and fluid, and the Camphire

phire wholly deprived from body, and turned into an oyl; it is a sudorifick very secure to expell the malignity of the plague, Spotted Feavours, and poison it self: it is also a preservative Remedy in time of Plague, both inwardly and outwardly applyed: if inwardly, this oyl must be reduced in a dissoluble Balsom with sugar in pouder; and every morning must you take three drops in a little wine: But outwardly, rub your Temples and Wrists at the beating of the Artery, and thus shall it act concurrenly both within and without; and so shall this noble remedy sufficiently strengthen spirits, that they may not be infected by the venom and poyson of the plague. But the use of this oyl cannot sufficiently be recommended for those that are subject to Hysterical passions: for this Remedy penetrates as in a moment, and appeases all the irritations of the mother; the Dosis is from 11. drops to vj. or viij. But you must note moreover, that this oyl is a very notable Specifick in the Epilepsie, both in young and old, and chifly in that kind which proceeds from the mother.

The manner of distilling the Gum Ammoniack.

WE take this Gum for an example of the distillation of other Gums, becaufe it is endowed with many noble medicinal faculties, and abounds more then the others in spirit, and in oyl: This Gum is taken from a feculaceous plant growing in that part of *Africa* where formerly was the Temple of *Jupiter Ammon*, whence it had also the name, to draw an oyl and spirit from it, which may be recommendable by their vertue; it must be very well chosen. The chief Notes of good Ammoniack, are, that it be yellow outwardly, and white inwardly, as Grums or Granes Olibanum, of a smell drawing to that of Castoreum, bitter in taste, and easily growing soft, if wrought a while between the fingers. But this Gum well chosen in a glass retort filled to a third part, and fit it in an Iron-pot so adapted in the furnace, that you may have Registers in the Corners; the bottom of the retort must not touch the iron, but it must be propped with three pieces of earth, as if it were a Trefoot, that the oyl and spirit may contract no Empyreuma or smoakish taste, if it be possible; cover the pot with its own covering, and lute it so

so, that nothing but the warm air may encompass the retort, to expell the vapours into the Recipient, which must be exactly luted without fillets of linnen dipt in whites of eggs, and strowed pouder of quick lime; graduate ths fire as you shall see occasion, and continue your distillation, till nothing more comes out; and when all is cooled, separate the oyl from the acid liquor, and rectifie each by it self in ashes, to apply to their uses: The oyl and spirit may be taken inwardly from iv. drops to xv. and xx. in white Wine or Sassafras, or a little Centaury water, to open obstructions of the parts of the inward ventricle, and chiefly of the Spleen. It is also a specifick Remedy to resolve and evacuate by seat and urine, the slime and tartarous Viscosities which create and cause pains in the joints, wherefore it may freely be given to those that are subject to the Gout and Rheumatism, as those likewise whose breast is laden with clammines and thick phlegms hindering the motion of the lungs: The spirit above all, is of singular use to free the Matrix from its impurities, as also to clense the kidneys and bladder from slime and sand; the oyl is also excellent to apply outwardly upon the Region of the Spleen, whereby to sustain it, and restore to its natural state, when it is grown schirrous and hard: It is likewise very efficacious to resolve Tophus's, Hardnesses and Callosities of the feet and hands of such as have been troubled with the Gout in those parts of the body. It is also one of the best remedies that can be applied to the Kings Evil, provided the Patient may be purged at the same time alternatively with some good Antimonial and Mercurial remedy. And thus shall we conclude this Chapter of Vegetables, in which we think to have sufficiently instructed the Artist with a method to guide him in such works as he shall find himself obliged to undertake upon substances, whereof this noble and ample family of Nature doth consist, whether led by a mean curiosity to encrease his knowledge and experience, or to prepare remedies which he may use and dedicate to the publick good and service. We must follow the same Rules and Preceps upon Minerals, which we will, God willing, perform in the following Chapter, with all the intelligibility and punctuality possible and requisite.

CHAP.

Chap. X.

Of Minerals and their Chymical Preparation.

WE are at last arrived to the last Chapter of our Chymical Treatise, which will contain the manner of working, which our Artist is to follow as a Model and Example in any operation he will undertake upon any part of the Minerals Family, the proper part and task as some are of opinion, of Chymistry. Now although we have shewed how many noble Remedies this Art may extract from Animals and Vegetables, yet all that seems but a play in respect of the operations which must be performed, to open and disunite what Nature hath so strongly bound, and as it were fixed in the substances whereof Minerals do consist and are composed. All this will better appear when we come to speak of it particularly: for though in the Theorical part of this Treatise we have already spoken of their generation, yet it is necessary that we should make a subdivision of this ample and numerous Head, and declare the Subalternate genders it contains, as also the Species whereof they consist; and that also we make a description of their original, assign their definitions, and declare their constitutive parts, that thereby the truth and nobleness of Substances may better be conceived, as also the difficulty of their Works, which must needs astonish and confound those that pretend to the Name and Title of *Naturalists* or searchers of Nature, and yet are ignorant of the most part of her noblest and choisest actions: For what could she produce more perfect, and lesse corruptible then Gold, more white then Pearls, more resplendent and shining then Ruby and Diamont, more wonderful then the Loadstone, and more capable of surprizing and puzling the Judgement and Learning of these conceited and unexperienced Philosophers, then all the substances whereof this family of Minerals is composed? But that which is no

no leſſe ſtrange, and yet is a particular weakneſſe of ignorance, is, That theſe learned Ones are not contented to neglect the Anatomy and ſearch of Minerals, but give themſelves a liberty and freedom to deſpiſe and calumniate both dead and living, who led by a noble deſire of Knowledge have applyed, and do apply themſelves to ſo neceſſary a work, and of ſo great advantage for the improvement of Phyſick, and think to have ſufficiently done when they advance and declare, that all theſe mineral Bodies have no correſpondence or analogy either with Man or the dſeaſes which ſeize on him, and hinder the joy of his life: But we ſhall in the ſequel of this Diſcourſe, God willing, evince the contrary, and evidently ſhow, that the ignorance only of the nobleſt handling of Phyſick, and their uncapacity of undertaking the work, have been the occaſion of their contradictions, which are but vain and importunate, ſince Phyſick, Pharmacy and Surgery, cannot at all be without thoſe noble Remedies that are extracted from Minerals by the operations of Chymiſtry.

The Mineral Kingdom contains under it ſelf ſeveral Families or Subalternate Genders, which are firſt Earths containing ſeveral kinds or Species, but chiefly thoſe wherein from all time hath ſhined and been conſpicuous ſome particular vertue; thoſe which are properly called Mineral and Medicinal *Earth's*, are all the *kinds of Bolus*, as *Armenian or oriental, and common*, all *the ſigillated Earth's*, as *that of Turky* or of *the Iſland Lemnos*, the *Sileſian* and that of *Blois in France*, *Chalk*, *Plaiſter*, *Oker*, *red-earth and Tripoly*.

Secondly, This Kingdome contains Mineral-ſtones, divided into precious, and leſſe precious: the precious are, *Amethyſt*, *Cordaline*, *Topaz*, *Granate*, *Hyacinth*, *oriental Ruby*, *Saphir*, *Emerauld*; to which, though improperly enough is added *the* Pearl, *Coral*, *oriental and occidental Bezoar*; and amongſt all theſe which we have related, Phyſick and Pharmacy do by excellency name the precious fragments, Granate, Hyacinth, Saphire, Emerald and Cornaline. The *leſſe precious are*, *Hail-ſtone*, *Alabaſter*, *Alumen plumum or feathered Alum*, *Lapis Armenius or the Armenian-ſtone*, *Lapis calaminaris or Bery ſtall*, *Emathite or blood-ſtone*, *Lapis Judaicus*, *Lapis Lazali*, *Linx ſtone*, *Loadſtone*, *Marble*, *Nephritick-ſtone*, *Oſteocella* — *Pumice-ſtone*, *Slate*, *Serpentine-ſtone*, Peable, *Smiris*

Smiris or Emerod, Lapis specularis, Spunge and Chalk.

In the third Classis are the Metals, and those Substances which have any resemblance or affinity with them, and the natural or artificial Excrements of Metals. The Metals are, *Gold, Silver, Copper, Iron, Tinne* and *Lead.* The *substances of near affinity, Mercury or Quick silver, Cinnabar or Vermilion and Antimony.* The *natural excrements of Metals are, Marcassites or midd'e minerals: as Zinck, Bismuthum, Cobolt, and metallick and natural Cadmia.* Artificial, are the two kinds *of Litharg, Pompholix, and Tutty.*

The fourth place in this Mineral-Kingdom is assigned to *Salts,* whereof there are two sorts, Natural and Artificial: *Natural* are the *common salt, salt Gemme and Vitriol*; Artificial are, *Alloms, Armoniack and Salt peter,* which may also be called *Natural.*

In the fifth and last place, Minerals contain under them the *sulphureous mixts,* which *are Sulphur or Brimstone, Arsenick, Auripigmentum, Realgar, Ambergreece, Karabe or yellow Amber, Spermaceti, Asphaltum, Naptha, Petroly, Sea-coal, Jet, which some would* have to be black Karabe or Amber.

We will chuse in each of these Subalternate Families what is more considerable in them, and will allow to each of the Substances a particular Section by it self; in which as much as in us lies, we shall explicate the nature of it, and upon each of these declare the noblest and chiefest manner of working which our study and experience hath gained us; that both the knowledge of the thing and the operation upon it, may serve to our Artist as a Guide and a Rule, as much to help them in the internal and external knowledge of Minerals, as a Model for all Chymical and Physical operations, which are necessary to draw from them those precious and noble Remedies that God and Nature have placed in it: For as concerning vulgar and mechanical operations which are performed upon the mines of Metals and Minerals, they that have any curiosity in this particular, may find them in such Authors as have written thereof fundamentally and *ex professo.* Let no body also look here or seek for Sophistications, white or red works upon Metals; for besides that they do not belong to a Discourse of Medicinal and Pharmaceutick Chymistry, it sufficeth to our Artist, and serves well enough his turn if he knows enough of it, to take heed and beware himself of the ordinary Cheat of those who do pro-

fesse it, and who are but too numerous at this day; but moreover, we should do a prejudice to the publique, in teaching that which is but too much practised by wicked and lewd idle persons, though well principled and vertuous men might make no ill use thereof.

Section I.

Of Earths.

WE begin by the Earth, as being the principle of all Physical Generations; for it is the common Mother, not only of Animals and Vegetables, but it is also much more properly of Minerals, since her bosome is as it were their matrix, in the Center whereof they are bred and generated. We do not pretend to speak here of Earth as it is a simple and pure Element, not to be conceived but intellectually; we will neither treat of it as of the Earth which is impregnated with the soul of the World, and which though dead of it self lives nevertheless with an invisible life, which the universal Spirit does continually infuse in it, to advance in her entrails the production of Minerals, in her surface the Vegetables, and supply the necessity of Animals which seem to be Masters of all the rest: for we have already treated of this noble and ample Matrix in the Theorical part of this Treatise. Wherefore we dedicate this Section to mineral Earths which are endowed with some physical Vertue, to the end to teach the Spagyrical way of the extracting of this vertue, and separating it by the operations of Chymistry; and even if this vertue cannot be separated without alteration of its Subject, or its only essential Faculties, to preserve and even encrease them by an addition of what may concur with the intention and answer to the indication of the Artist that intends the use of them. These kinds of Earths have been declared by several names for three principal Reasons: the first for the place of their original: the second for the Matrix which has supplyed them and given them their colour: the third by reason of certain Characters or figures impressed

impressed upon them. This is called the *Lemniac*, *Maltha and Turkish* Earth. This the golden Mine or Solar Earth, the silver Mine or Lunar Earth, the Venerean, Saturnine, &c. and finally, the *terra Sigillata* or sealed Earth, according to the place from whence it comes.

We shall not speak here of the mineral Earths or mines of Metals, no more then of Marcassites, middle-Minerals, or Vitriolick and Sulphurated Earths; when we come to treat of Metalls and their original in the following Sections we shall be oblig'd to speak thereof. Our Discourse then here shall only be of Bolus's and Earths so properly called, that what we shall deliver, may be as a Light and Direction to handle all other sorts of Earths that shall have some resemblance and analogy with these.

Of Terra Sigillata or sealed Earth.

BEfore we speak of the chusing of these Earths, and designe particularly the marks of their goodnesse and Vertue, we must make a small mental reflection upon the cause and reason of their chief Vertue. We have already so often said, that Light is the spring and source of all good impressions, that we need not farther insist thereon, being it is of absolute necessity that this Light should have transmitted her Rayes into the very center of these Earths, since we find in them a Cardiack, Cephalick, Hepatick, Stomachical vertue, which could not be unless this Earth were impregnated with some vitriol, or Solar, Martial or Lunary Sulphur, which are nevertheless only embryonated in the same, as we will make it appear in the sequel of this Discourse; For these Earths being only found in such places where perfect or imperfect Metals are extracted, so are they more or lesse pure, more or lesse efficacious and full of vertue, according as they partake of the purity or impurity of Vitriol and Sulphur, which are the principles of Metals found in the place of their birth and original.

The most excellent of all these Earths is that which is digged in the Island of *Lemnos* by order of the *Grand Seignior* every year, and thence carried to *Constantinople*, to be distributed afterwards through *Europe* at his pleasure: The second in order and good-

neſſe, is that which is found about the Town *Striga* in *Sileſia*, where they have begun to give it a Seal, *viz.* two Sols: ſome call it the fat of Gold or *axungia Solis*, becauſe impregnated with a ſolar Sulphur, and it is of a reddiſh colour; there is alſo a ſecond or inferiour kind which is gray or whitiſh, called alſo the fat of ſilver or *axungia Lunæ*, becauſe impregnated with a Lunar Sulphur. That which is Solar is dedicated to the Heart and the diſeaſes thereof, as the Lunar to the Brain and Liver. The third kind of Earth in goodneſſe is that of *Blois*, and all the ſorts of Earth that come nigh to it; the choice of either of them depends upon two chief notes: firſt, it muſt be apt to ſtick and cleave eaſily to the Tongue when touched by it; ſecondly, the wet or ſpittle that ſticks upon, or any other moiſt liquor, muſt immediately riſe in ſmal puſtuls or bubbles, and make a kind of ebullition, or any parcell thrown in water muſt immediately put it to a boiling; and as we ſaid that theſe earths did partake of a ſolar Vertue, by reaſon of embryonated mineral ſulphur which is in them; ſo may we alſo affirm that they are Remedies purely natural, and capable to ſhew their vertue as they come from the hands of Nature without neceſſitating Art to contribute any help of its own: contrariwiſe, it ſhould ſeem that Art here would but injure and offend Nature, ſince theſe earths have much more vertue before the common preparation thereof pretended by vulgar Pharmacy, which are to waſh & triturate them upon a Marble or Porphyry; which in effect doth nothing elſe, but take away from them that vitriolick embryonated portion in which doth conſiſt their vertue and efficacy. But there is a Spagyrick preparation better able to draw their pureſt and moſt efficacious ſubſtance, and thus more pleaſantly and in a leſſe Doſis it may be exhibited to Patients. The general and particular vertues of Earths and Bolus's are to deſiccate and aſtringe, reſiſt putrefaction and venom, reſolve coagulated and congealed blood, ſtrengthen the Heart and Brain, and by ſweat purifie the maſſe of the Blood; wherefore with great ſucceſſe and advantage they may be given in Plague, malignant Feavers, Diarrhea's, Dyſentery and bitings of venomous Creatures. Their external uſe is to apply upon feſtered and deſperate wounds, and to ſtop Hemorrhages or iſſues of blood.

The

The distillation of sealed or sigilled Earth.

℞ ℔v. or vj. of *Silesian Earth* bearing the mark of two Hillocks, with all the notes of goodnesse which we have assigned above: break the Cakes in three or four pieces and put them in a Glasse Retort, which you must place in a close Reverberatory, fitting to it a capacious Receiver luted exactly in the Joints; cover the Furnace, and give it a gradual fire during the space of xx. or xxx. hours, or until no more clouds do appear, or that the Artist shall see a Sublimatory made, not only about the neck of the Retort, but that it hath even penetrated into the body of the Recipient; for it is then a sure token that the Earth hath yielded all the salt and sulphur which it did contain; and though it appears little by the bulk and quantity thereof, yet that which is extracted ought to be highly valued by reason of its great vertue and pleasantnesse; for the liquor has a very agreeable acidity: that which is sublimated must be joined to the said liquor, put in a Glasse-Viol and so kept for use. It hath no need of Rectification, for there is nothing in it but pure and useful. It may be us'd instead of the body of the Earth in all diseases whereto we have said above that it did conduce; but this Liquor hath one quality besides, that it is extraordinary good to appease the pains of running Gouts, and to correct the malignity of Itch and all other eruptions of the skin. The Dosis is from iiij. to xv. or xx. drops in Broth, Wine, or some other distilled water appropriated to the Disease. But you must note, that the Earth left in the Retort after distillation cleaves no more to the Tongue, causes no more ebullition when wetted with spittle or any other Liquor, though it keeps still its shape and colour, which is an infallible token that its radical moisture and internal fire which were causes of their astringence and ebullition, are passed into the Recipient, and that this was by consequence the chief part of its vertue.

Of Bolus.

BOLUS is a knd of reddiſh earth, which partakes and is impregnated of the vapours of ſome Mines or veines of Iron, which is Mars, and participates ſomething of the ſolar nature. It is vulgarly called in ſhops *Bole-Armeniack*, or oriental and fine, becauſe it comes from the oriental parts of *Armenia*. The beſt is that which is pure, not mixt with Sand, which inſenſibly melts away as lime after it has been wetted, or like butter in the mouth is very aſtringent, and eaſily and quickly ſticks to the lips and tongue. The chief vertues of it are, ſtrongly to deſiccate and dry, to aſtringe and ſtrengthen; wherefore it is very uſeful in ſtopping of Fluxes, hindering colliquations and reſiſting putrefaction and venoms, which makes it to be employed in Diarrhea's, Lientery, Dyſentery, immoderate courſes, whether white or red, ſpitting of blood, bleeding of the Noſe and ſtopping the blood in Wounds. It may alſo be mixt in Cataplaſms, Unguents, Salves and aſtringent pouders for outward applications. Bolus may be diſtilled in the ſame manner as the ſigilled Earth and applyed to the ſame uſes. But becauſe Bolus of it ſelf is already an excellent Earth, we muſt teach our Artiſt how to improve and meliorate it, not by a ſeparation of its parts, but rather adding ſome Subſtances which ſhall encreaſe its vertue, according to the Indication which may engage him to make uſe thereof; for as this Earth is dry and void of all moiſture, ſo doth it attract to its ſelf the Spirits and Salts of any Liquor mixt with much eagerneſſe, and keeps them to its ſelf till the heat of the Patients ſtomach calls them forth by making ſeparation thereof. We will deliver four ſeveral deſcriptions, that upon the model of it others may be prepared. The firſt ſhall be to make it more aſtringent, and capable of producing its effect ſooner and more ſafely in outward applications. The ſecond, to render it more efficacious for diſſolving congealed and coagulated blood in the body, whereby to corroborate Nature, and help it to expel and evacuate that blood ſo diſſolved, either by Sweat or Urine. The third will encreaſe its aſtringency for inward applications, to make it ſooner ſtop the Fluxes and looſeneſſe

nesse of the Belly, Dysentery and immoderate Courses. The fourth will render it more fit to produce very remarkable effects in pestilential diseases and all malignant Feavers, where strength doth fail by the sharpnesse and abundance of the venom, which of necessity must be brought to transpiration, and expelled from the center of the Patients body to the circumference and outward parts by the help of this prepared earth, which retains in it self the best, subtilest and purest of the liquor wherewith it has been impregnared.

Preparation of the Bolus to make it more astringent for outward applications.

THis preparation cannot be made but once in a year in the moneth of *March*, becausse you can have no spawn of Frogs but in this season only which is the beginning of the Spring. Take then about that time half a Bucket full of spawn of Frogs, which put in a linnen cloth bagg somewhat thin with half a hundred of Cray-fishes bruised in a stone or marble Mortar until they be reduced to a pap, and having hung it over an earthen panne or other Vessel receive the Liquor dropping from this bagg, and when you shall have about ℔ iiij. of this liquor, purifie it by percolation, and mix with it purified and chrystallized Salt-peter and roch-Allum *ana* ʒ j. ℈. After which reduce ℔ j. of fine Bolus to pouder; and having moistened the same with this Liquor, dry it again, and thus proceed moistening and drying until the Bolus hath drunk up all the liquor; and this Bolus thus prepared will be very good for outward applications, both for stopping blood and hindering inflammation and other accidents, which for the most part follow bruises and Wounds. It may also be put in Plaisters, Salves and Cataplasms.

Prepa-

Preparation of Bolus to resolve coagulated blood inwardly.

℞ Smallage, Sorrel and Plantain newly gathered, of each ℔ j. beat them in a marble Mortar and expresse the juice thereof, which you must put in a Cucurbit on sand with ℥ iiij. of mundified Roots of the same plants, and Manip. ij. of our Ladies-thistle or the Milky-thistle, Manip. iij. of Chervil, and iiij. of Pimpernel: cover your Vessel with a Blind-head and make it boyl the space of six hours, then percolate it as clean as you can; and with this liquor imbibe ℔ j. of fine Bolus in pouder, and let it dry, continuing this moistening and drying until all the liquor be spent; and keep it thus prepared to administer to such as being fallen from high, have some quantity of blood inwardly shed in the breast or lowermost belly. The Dosis must be from x. grains to ℈ iiij. mixt with as much Nutmeg-pouder in Broth or some vulnerary Decoction, made with Bugle, Sanicle, Winter-green, and *Consolida Sarracenica*, or even administer it in Pills and give the Patient to drink after.

Preparation of Bolus against Dysentery and Diarrhea's.

℞ Bistorta Roots or Snakeweed, Sorrel, Cynogloss or Dogstongue, *Lapathum acutum*, Plantain, Tormentil, *ana* ℥ j. ℙ. fresh and recent Herbs of Plaintain, Mille-folium, Pyrola or Wintergreen, new-gathered leaves of the ends of Oak-branches *ana* Man. ij. pick all these, wash and shred, and boyl in an earthen pot in sand, with ℔ j. of phlegm of Vitriol, and ℔ iij. of water of Knotgrasse till it be reduced to a third part; then strain and percolate it cleanly, and with this liquor sprinkle and moisten ℔ ß. of Bolus; and continue moistening and deficcating until the whole Decoction be spent; and thus shall you have a wonderful Bolus to stop Dysentery and all kind of Lasks of immoderate loosnesses of the belly, without any fear of shutting (as the Proverb says) the Wolf in the sheep-fold: For this Remedy performs its action by strengthening, corrects meerly the irritation or weakness and relaxation

relaxation of the Maw-gut, and restores the Ventricle in a condition and sufficient strength to retain and digest the aliments and meats injected. The Dosis is from v. *gr.* to ℈ ij. with half as much salt of Coral made in Pills with vitriolated Conserves of Roses, or mingled with some stomachical Decoction or in Broth; but it is much better given in Bolus, that it may have so much more leisure to tang in the stomach, and impresse better there the character and irradiation of its vertue.

Preparation of Bolus against Pestilential and contagious Diseases.

℞ Scordium and Rhew, *ana* Man. ij. upper rind of Oranges and Lemmons *ana* ʒ ij. Angelica, Carline-thistle and Contrayerva Roots *ana* ʒ j. shred small the Plants and Rinds, and reduce to course pouder the Roots, then put in a Matrass with ℔ j. ß. of Spanish Wine, and applying thereon a Blindhead, put it to digest in a vaporous Bath the space of three natural dayes, which expired let the Vessels grow cold; then expresse the Species and filtrate the liquor, with which imbibe ℔ ß. of oriental Bolus reduced to ponder and divided in four equal parts: but because it would be damage to lose the water, which by an ordinary way of exsiccation would vapour away in the ayr, draw off the water again in *B. M.* till the masse remains dry in a Cucurbite fitted with its Still head, and that four times reiterated; having so many times moistened your Bolus, which afterwards keep in pouder in a bottle well stopt; You must also preserve curiously the water: for as the Bolus hath preserved the centrical vertue, and taken to himself the Extract of those Ingredients which encrease its Cardiack and alexiterial Vertue, so hath the water drawn what was spirituous and volatile in the same, which is not of lesser importance then the rest. This *antipestilential* Bolus may be given from v. *gr.* to xxx. with half as much Vipers flesh in a spoonfull or two of the water drawn off from the preparation in all pestilential and malignant diseases, but chiefly against the plague, and even this admirable Remedy may generally be used against all poysons.

These are the four kinds of preparations whereof we thought

our selves engaged to speak, that they may be as Models and Examples to perform others, according to those Indications which Physitians carefull of the recovery of their Patients shall take. The Chymical Artist may distil the Bolus in the same manner as we have taught above the sigillated Earth was to be distilled and appropriated to the extract thereof, according to the vertues whereof the Bolus is possessed, observing the same Rules and Dosis as in the Remedies extracted from sigillated Earth, as we have sufficiently declared above.

Section II.

Of Stones.

BEfore we deliver the definition of Stones, and describe the operations performed upon some of them, we have thought it not unfit to speak something of the essence or mineral Spirit which rules in the Earth, in whose bosome it begins and ends the generation both of stones and of all other mineral Bodies. Now this essence or Spirit is void of action, unless assisted by the water which is to it instead of a Vehicle, to convey and carry it in its soft and fluid body into the very bowels of the Earth. This mineral essence seemes to be nothing else but the universal spirit of the Spirit of the World, impregnated by the light of all the mineral Ideas, which it doth impress and communicate to the water, that she may be capable to produce the fruits of the mineral Kingdom in the several matrixes of the earth, according to the Genus and species of this essence, differing in nomination, though one and the same in essence: for according as it is metalline, petrifying, saline, bituminous and earthly, it produces the variety of substances depending of each of these subalternate genders, and according to the predominant character and Idea, the mineral substances are pure or impure, fix or volatile, and so of all the other proprieties and faculties of these Mixts.

This being so, it is not difficult to conceive that stones in general

ral are nothing else but terrestrial hard bodies, not ductile, apt to crumble, and coagulated by the power and strength of the Lapidifick Ferment: We have hinted above the difference and variety of stones: there remains no more to do at present, but to chuse those we intend to give for an example & pattern of the operations which generally may be performed upon all others. We will then select for the subjects of such preparations as may be wrought upon stones, First the *Emerald*; secondly the *Chrystal*; thirdly the *Coral*; fourthly *Lapis Judaicus*; fifthly *Chalk*, and finally the Limestone. But as there are general observations which may be given for all stones in general, we must speak something thereof, because it will much help our Artist to facilitate and explain the meaning of all what we shall hereafter say, not only of stones, but also of all other Minerals and of Metals themselves. They that will have a very exact knowledge of stones, may have recourse to that learned Book which *Boetius Van Bood*, Physitian to the Emperor *Rudolphus* II. hath writ, and he shall fully be satisfied as touching this matter: for our intent is only to anatomize here those we have named; because they will be sufficient to instruct the Chymical Apothecary how to work upon all others that have a relation or conformity to them.

First then we say, that our Artist must consider, that as the body of precious or not precious stones is harder and more fix then that of Animals and Vegetables; so must he go to work and proceed in another way in their anatomy, and use different Menstruum's to extract and dissolve them: and moreover, that these Menstruums shall not act for the most part upon such fix and solid bodies as these are, unless they be calcined beforehand, either by themselves or mixed with Salt or Brimstone, to penetrate the hardnesse and compactness of their bodies, and render them porous, so as the liquors which shall be used in their extraction or dissolution, may more easily and usefully perform their action upon them. *Calcination* is one of the principal operations made upon stone, either to make them fit for Medicinal uses, or to open them and render them capable of the most exact Chymical operations. This dispositive or preparatory Calcination is threefold: for it is either meer ignition, as when common Lime is burned; secondly, ignition with an extinction of the matter in some Li-

quor, to disunite it by this reiterated action, and so reduce it into Pouder or Calx. The third Calcination is performed with common salt, Saltpeter or Brimstone. *Solution* follows Calcination, and is made with several different Menstruum's, according to the greater or lesse fixity found in the dissoluble Bodies; the chief and most usually employed are Vinegar, either simply distilled, or alkalized, the spirit of therebinthinated Vinegar, and the vinegar of Honey, spirit of Vitriol and of Salt, and oyle of Sulphur or Brimstone made *per Campanam*; but the spirit of *Venus* goeth in vertue and activity beyond all the foresaid Menstruum's, to extract or dissolve all manner of calcined or uncalcined stones; we will shew the preparation of it in the Section of Metals. After dissolution follows *coagulation*, which is performed two wayes: either drawing of the Menstruum by evaporation or by distillation, and then what remains is a salt; or else it is made by precipitation, and the remaining pouder is properly called *a Magistery*.

There is besides *Edulcoration* and putrification made by ablutions, solutions and coagulations often repeated: and for the last operation, *liquation* or solution of the salts which have been extracted from the stones, in a Liquor commonly called *Oleum per deliquium*, or oyl of Deficiency; it is made in some moist place upom some Table or square of Marble or Glass; and the Crown and perfection of all the work, is the volatization of the liquor or salt of a stone by the help of some good Cordial Menstruum, which is not to be performed but by digestion and reiterated distillation; for in every one of these operations, there ascends still a portion of salt with the Menstruum; and if the Menstruum be left impregnated with this salt, it is called the *Elixir* of the stone: but if it be drawn off with a soft and gentle heat, that which remains in the bottom of the Vessel in the form of an oyl is called *the essence* of the stone.

Thus by this gradation of operations stones are converted into Salts, Magistery, Liquor, Elixir and Essence: But before we put an end to these general hints, we will give a general processe upon all kind of stones, to reduce them into Salt and Essence with lesse work and lesse toyl, which is performed in the following manner.

Reduce to an impalpable pouder such kind of stone as you shall think

think fit to take by one of the three Calcinations we have mentioned above, then grind this subtil pouder on a Porphyry stone or a Sea-shell, with equal weight of Bay or Seasalt well dryed; put that mixture in a Crucible, which you shall cover and lute exactly: the Lute being dry, put it in a Potters-furnace at the same time as he begins to bake his pots, and there let it stand twenty four hours: after which take out your Vessel and open it, and the matter which you shal find in it, dissolve with warm distilled rain-water in a glased earthen pan; stir and triturate it nimbly with a Glass or Wooden pestle; pour the dissolution in another pan also glased, and thus proceed grinding; stirring and dissolving in new warm water, until the Calx of the stone remains indissoluble in the bottom: then dry it and reiterate the same operation with dryed salt, until all the body of the Calx be reduced and converted into a slimy fat and glewing substance among the body of the warm water: then being setled again, separate the clear water which swims above the slimy grounds of setlement by inclination; and put all these waters in a glass Cucurbite in sand; give it a competent fire, and draw off by evaporation or distillation the half part thereof: then pour upon the liquor remaining in the Cucurbite oyle of Tartar drawn by deficiency or *per deliquium*, drop by drop until this liquor becomes as white as milk; then filter this white water, to separate the part thereof which you shall find precipitated; and thus continue to precipitate and filtrate until the water remaines clear. Then put together all the slimy parts remaining in the bottom of the Pans with that which is in the Filter, and wash it with pure lukewarm Fountain water, until the water comes out as void of taste as when it was poured on, which will be a sure token that the remaining matter is destitute of all saltishnesse; then separate the water thereof with as much exactnesse and care as you can, and put this matter in a Cucurbite, pouring upon it very good distilled Vinegar four fingers high; put all in ashes to digest, until the Vinegar hath lost its sharpnes and is become sweet; then draw it off by inclination, and pour fresh Vinegar theron at the same height, and thus proceed & go on, until the distilled Vinegar changes no more its taste: then joyn all these extractions and dissolutions, filtrate and evaporate in sand slowly without boyling until all be dry, and you shall have the salt of the stone

of

of a grayish colour, which grind and put in a Matrass, and pour upon tartarizated spirit of Wine the height of four fingers: stop your Vessel with a Blindhead and extract the Tincture thereof in *B. M.* and when the Spirit shall appear coloured, separate it and supply with new until it takes no more colour; then filtrate all the Tinctures, and draw off softly the spirit in a vaporous Balneo, until the essence of the stone remaines in the bottom in the consistency of a clear Syrup. This is the general method of working upon stones of what vertue or quality soever: and whensoever our Artst hath made any Essence of this kind, he shall repair to such Authors as have particularly treated of that stone and of its vertues, and so shall be capable to apply them to their right use. We may only add the genetal Dosis of these noble Remedies, which is from j. or ij. drops to viij. or x. in the morning fasting, in Broth, Wine, Decoction, or some distilled water specifick and appropriated to the Disease and Remedy; and let this be said in the way concerning stones in general; we come now to the particular operations which we propound for a Pattern and Model in particular.

Of the Emerald, and its Chymical preparation.

THE *Emerald* is a precious stone, transparent and very fair by reason of its pleasant green colour, the softest and most brickle of all others. The best *Emeralds* are the Oriental, both in regard their green is deeper and more pleasant to the eye, and because they are of greater vertue; the meanest are those which are brought from *Peru* and found in *Europe*. After that the fragments of *Emerald* have been purely calcin'd by ignition and extinction in water of juice of Bugloss, and then triturated or ground to an Alkohol upon the Porphyry stone with the same water and dryed, it may be administred in Bolus or Pill, with Conserve of Marigold flower from iiij. *gr.* to x. against all manner of Lasks of the Belly and bloody Fluxes: but chiefly against Dysentery, either proceeding from erosion of the Entrals, or from some malignant matter: it is also a fit Remedy against the biting of venomous Creatures, Plague, pestilential Feavers and all others

thers that partake of malignancy. There are many other noble vertues attributed to the *Emerald* being whole and unprepared: but they only respect outward application, such as to hang it on the neck against the Falling-sickness; Tye it to the Thigh for advancing delivery in Childbed; apply it on the belly to prevent miscarrying, stop the bleeding of the Nose with keeping it in the mouth; as likewise bloody Fluxe, and Emrods applyed upon the Lungs: it is also said to recreate both outward and inward senses worn on the finger, and to expel fear and terrour of ill Visions. There are some Authors who deliver as an undoubted truth, it will oftentimes break being worn by too lascivious a person, and who unboundedly will abandon himself to Venery. So much have we thought fit summarily to say, that it may appear what experience hath found out towards the efficacy of precious stones, which have all in themselves some portion of very pure metallick Sulphur, which communicates Vertues and Faculties unto them of much more extent then that of Animals and Vegetables. And what is this Sulphur else but the purest part of condensed light? which yields a continual irradiation of its vertue without any lessening or diminution, by reason of the magnetical vertue of the stone, which perpetually attracts its like from the uppermost Heaven, as it appears yet better by the *oriental Saphire*, and the efficacy is wonderful against the Plague, insomuch as if the Patient hath many boiles or sores on his body at once, none of them will break or run, but that about which a circle or ring hath been made with a Saphire touching the skin: and moreover, the scarification shall never surpasse the bounds, which the vertue of the stone seems to have prescribed ann limited unto it. But let us come to the Chymical preparation, by which the salt Tincture and Elixir or Essence are extracted.

Of the Chymical Preparation of Emerald.

TAke fragments of Emerald the greenest and cleanest you can meet with, beat them to pouder in a steel-Mortar, and searce the pouder through a fine linnen Searcer fitted in a Box, which in the

the *French* ſhops is called *Cicotriner*; or it is as good to triturate them into an impalpable pouder, which put in a Matraſs, pouring upon it of the volatile ſpirit of Urine having yet its phlegm, to draw the colour, and the ſpirit being ſufficiently coloured, draw it off and pour on other until it takes no more colour; then filtrate the Tincture through a Cotten, and put them into a Cucurbite to draw off the Spirit, till you have the bottom in the conſiſtency of an extract, upon which pour very good ſpirt of Wine; then ſtopping the Veſſel with a Blindhead, lute it, and in the vapour of Balneo put it to extract, digeſt and circulate untill the ſpirit be ting'd with a high green; after this draw back again the half or two thirds of the ſpirit with a ſlow heat, and you ſhall have an *Elixir* or eſſence of *Emerald* left, which is a ſoveraign Remedy againſt Dyſentery and all other kinds of flux of the belly, red and white Courſes of Women, Emrods and Hemorrhagy. It is of no leſs uſe againſt all affections of the brain, and paſſions of the heart, chiefly againſt ſwooning, weakneſs and palpitation; as alſo Melancholy, Phrenſie, Hebetation or weakening of the functions of the Spirits proceeding from ſome long and perillous diſeaſe. For beſides this Centrical and luminous Sulphur whence all theſe noble vertues are derived, there remains beſides in this *Elixir* a certain portion of the volatile ſalt of Urine, which cleaves to this Sulphur by the help of the ſpirit of Wine, framing together an eſſence capable of all theſe vertues which we have attributed unto it. The Doſis is from ij. drops unto x. in Liquor appropriated to the diſeaſes of the Head, Heart and lower Ventricle.

Of Chryſtal, and its Chymical preparation.

CHRYSTAL is a tranſparent ſtone, having ſome likeneſs unto congealed water reduced into lucid and tranſparent Ice; ſo that what the *Greeks* call *Chryſtal*, we call it *congealed*. We ſhall not here inſiſt long upon any debate to prove that Chryſtal is nothing elſe but meer congealed water, ſince to diſcover the untruth of that opinion, it will ſuffice to ſay, that Chryſtal doth not melt, but being calcined turns into Calx and Salt by the ſtrength of the Spirit, by which it hath been coagulated of a very pure Earth and

and a little proportion of water, which by help of the salt it had in it self, impregnared with the petrifying Idea and ferment, hath dissolved the said earth. Neither shall we speak of that Hexagonal figure which the outside of the Chrystal doth ever represent, but shall only say that the circular figure is the perfectest of all others, and that Hexagonal comes the nearest to it: and that as the chrystal is one of the most pure and perfect substances, therefore also it comes nearer to the spherical or circular figure. Chrystal is found in *Portugal*, in the Island of *Cyprus*, *Germany*, *Hungary* and *Bohemia*: it is not difficult to our Artist to make his choice thereof, by reason of the transparency of the matter; it being sufficient to chuse that which is more compacted, purest and clearest; and to prepare it a little better then usually, it must be made in a gross powder, and heated to redness in a Crucible with a wind furnace, and when it is glowing red, pour in radish water, or water of roots of Restabovis, or Restharrow, somewhat sharpned or acuated with a little spirit of salt; and this ignition and extinction continued three or four times, then grind it on a Porphyry to implacable pouder, with the same water that was used for the extinction of it; ane thus being dryed, keep it for use. Chrystal hath an astringent vertue, therefore it is good for stopping of a Lask, and against Dysentery, against Colick, *Cholera Morbus*, white and red courses of women, Gonorrhea's, and *Ven.* runnings, it encreases milk in the breast, expells and dissolves all tartarous preternatural substance in all parts of the body: above all, it dissolves Tophus's and hardnesses in limbs proceeding from the gout. But its principal use is to expell clammy humours and sand from the kidneys and bladder: the dosis from ℈ j. to ℈ ij. in *bolus*, in some conserve of *Eglantine*, or Parsley-water, if it be for nephritical passions, and so in other conserves or appropriated waters, according to the prudence of the skilful and expert Physitian, and the diseases he takes in hand.

The Chymical Preparation of Chrystal.

BEfore we come to the exact and perfect preparation of the Elixir and essence of Chrystal, we must premise an instantaneous operation, in respect of the orher, whereby our Artist

may ever be in readineſs to ſuccour and aſſiſt thoſe that ſhall have need of this remedy, according to the order and preſcription of Phyſitians: To this end, take equal parts of Parſley, Nettle, radiſh water, as alſo of Reſtabovis or Reſtharrow, acuated with ſpirit of Vitriol, or oyl of Sulphur *per campanam;* put all theſe waters in a well glaſed earthen pan, and having brought to ignition in a wind furnace as many ounces of Chryſtal as there are pints of theſe waters, let the Chryſtal be only groſly beaten, and when it is glowing hot and red, extinguiſh it in the ſaid waters, and ſo reiterate this ignition and extinction ten or twelve times, that ſo the waters may draw to themſelves the beſt part of the Salt of Chryſtal: then filtrate the liquor remaining, and add two ounces of white ſugar-candy to pouder to each pound, and thus ſhall you have a quick and eaſie remedy at hand, to adminiſter to thoſe that ſhall find themſelves perſecuted with the pains of gravel. The Doſis is from half an ounce to three in broths or decoction of roots of Onions, or Reſtharrow, and *Virga aurea* or golden rod, made with equal parts of White wine and water; and note, that the Patient muſt be in a half bath, when he takes this remedy, and be prepared with a glyſter of Turpentine taken and given back before he enters into the Bath.

The Preparation of Salt of Chryſtal.

DRY the remainder of the foregoing Preparation, and grind it to a very ſubtile pouder upon a Porphyry, then flux it in a Crucible, equal weight of very pure Salt-Peter; and when it ſhall wholly flow, throw in it by degrees and ſmall parcels, the chryſtal pouder well dryed, and leave them ſo together by infuſion five hours; this done, diſſolve that which remains in the Crucible with diſtilled rain-water, to waſh away the remaining Salt-Peter; then dry gently the Caly, and put it in a Matraſs, pouring upon it very good diſtilled Vinegar, three times cohobated upon burning Nettles; and continue this diſſolution, till the vinegar draws no more; then filtrate all the diſſolutions, and evaporate untill they be dry, and you ſhall find in the bottom of the veſſel a greyiſh ſalt, which you muſt diſſolve again in the ſame Menſtruum, filtrate and evaporate to purifie it; and thus you may keep it,

it, either dry as a salt, or dissolve it in liquor in a cold Cellar, and you shall have that which is improperly called *the oyl of Chrystal*. The dosis of the Salt is from iv. gr. to xvj. in appropriated liquors, and with requisite precautions; and the dosis of the liquor is somewhat stronger, by reason of the moistness which the salt hath attracted to it self, by which it is reduced ro liquor. You must turn back to what we have said of the Vertues of prepared Crystal, to judge of the Salt and Liquor: Noting this nevertheless, that they are principally and more properly used against Podagrical diseases, and specifical for kidney and bladder.

How the Elixir or Essence of Chrystal is to be prepared.

℞ OF the purest rock-chrystal, reduce it to a coarse pouder, and place it in a Crucible in a wind furnace, and being red hot, quench it a glassed pan full of very good distilled vinegar, and reiterate this ignition and extinction three times, or which is better, till the Chrystal turns of it self into a calp as small as sands, then dry this calp, and mix it with equal weight of flowers of brimstone, and calcine them together in a Crucible till all the brimstone be spent; this calcination reiterate three times, then mix the remainder in the Crucible with its double weight of very fine Salt-Peter, which must be set in a fusion and flux, and therefore the Crucible very good for the space of xij. hours: and if the Crucible should happen to crack, have an eye presently to supply it with another, which therefore you must have ready at hand, rebaked, and kept warm under the grate of your wind furnace, that it may out of hand be trusted to a great fire without danger of breaking; the time being expired, and the calcination over, grind the remaining matter on a porphyry stone, ℥iv. at a time, and add to it by little and little very good distilled vinegar to the quantity of ℥x. and thus continue till you have a pound of the grinded matter, which put in a new large Matrass, and pour on it of new distilled vinegar pure and strong; stop the vessel with its blind head, luted with quick lime and beaten whites of eggs; then put to digest in B. M. the space of two natural days with a moderate heat; and in the end you shall find the vinegar tinged with a very high blood-red colour; open the vessels, and filtrate the liquor, and put it in a Cucurbite in B. M. to draw

all the liquor till the grounds remain dry; which take afterwards, and put on a Marble-ſtone in a cold cellar, or ſome other moiſt place to reſolve them into a red liquor, which you are to receive in a glaſs cup or doſis, co-operating ſtill carefully, whether the drops as they fall be red, becauſe the eſſence of the chryſtal is only in them which hold forth that colour; for when the colour alters, it is a manifeſt ſign that the fixed ſalt of the Salt-Peter diſſolves it ſelf; wherefore you muſt keep apart the firſt liquor, without much heeding the other: let this red liquor ſettle during ſome days, and draw by inclination the pure part from the impure, which preſerve in a ſtrong vial; and when you will uſe it, take ℥j. thereof, and mix it with another ounce of good white Wine in a Vial, and ſhake it together; then let it ſettle the ſpace of twenty four hours and there will be yet a new defecation; pour the clear and red thereof not ſtirred in three pound of white wine, to which this liquor will cleave without leaving or ſeparating any impurity; this mixture muſt be adminiſtred three times a day to ſuch as are tormented with the ſtone, gravel or nephritical Fits, and thoſe alſo which have already ſome diſpoſition towards the gout, and find any weakneſs or impediment in their limbs: but chiefly to thoſe which are troubled with Tophus's and Hardneſſes, by reaſon of the Tartar coagulated towards the extremities. The doſis is ℥iv. or ℥v. in a glaſs, the firſt time in the morning faſting, the ſecond two or three hours after twelve, and the third about bed-time: The uſe of it muſt not be intermitted during the ſpace of a philoſophical month, which is forty days, to perfect the recovery; and if during this interval the belly doth not perform its office, take no purging medicine, but it will ſuffice if every other day the Patient takes a plain Glyſter of freſh ſtale, or urine without any addition to it, and the next day ☽j. of the liquor of ☿ of *Sennertus* in chicken or veal broth, where you have boiled Parſley and Scorzonera roots. But if any by prevention only will take ſome of eſſencified wine, a glaſs in the morning faſting will ſuffice for the ſpace of fifteen days, twice in the year; viz. viij. days before the two Equinoxes of March and September, and viij. days after: and, in ſo ſo doing you ſhall doubtleſs reap the fruit of your hopes.

Of,

Of Coral, and its Chymical Preparation.

WEE put Coral and its peparation in the rank of stones; as much by reason of the analogy of its stony substance, as because the operations which are made upon it have a great resemblance with those performed upon stones, both in respect of the manner of working, and the Menstruum's which Artists do use both to dissolve and to extract it. The work we shall teach here upon Coral may be a pattern for Pearls, all kind of stones proceeding from Animals, and from shells: for it would but prove tedious to repeat so often the same thing, since both the manner of working and Menstruum's are like in the one and the other.

We shall not lose time here in frivolous debates about the opinion of ancient and modern Writers concerning the generation of Coral, to know whether it was Plant-like, of a soft or hard branch before extracted out of the Sea, because all this makes little for our purpose, it will suffice if we can but in a guesse say most probably what it is, delivering the differences and teaching the choice thereof, and principally how it is best reduced into usefull Remedies.

Coral is nothing else but a strong shrub found growing upon stones in the bottom of the Sea. There are several differences of it by reason of the variety of colours, and the more or lesse compactedness and hardness of its substance; but waving all other kinds, we purpose only to treat here of red Coral, which must be of a close substance compacted, dry and hard, high in colour, pure and clean, such having more vertue, and possessing in it as in a compendium all the efficacy and essential faculties, which the other kinds may be endowed with. But here some body might move a question, Why red is preferable to all the rest? to which the answer is not difficult, since this redness is an external signe of the intrinsecal vertue of the mineral Sulphur, which is one of the principles of Coral, and from which are derived the chief vertues of it being of a Solar nature; which is the cause also that all Artists have at all times sought with great study, care and diligence

gence the way how to extract the true Tincture of Coral, being one of the chief Remedies which Chymical Physick doth afford; for if any thinks to be capable of giving a reason for this redness by the first and second qualities of substances, certainly he will fall short of his purpose, since we can assign no better reason then the Will of the Almighty Creator, who hath imparted to things such colours as he hath been pleased with, and hath so wisely implanted them in their seminaries, that their internal *archeus* or natural and innate Architectonical spirit can never swerve from them nor forsake them but by Errour or uncapacity and unfitness of the matter, the ordinary causes of generation of Monsters, which very unjustly are attributed to an errour and blemish of Nature.

The Chymical preparation of Coral.

AS Coral possesses many singular and noble vertues, so have our Artists in all times sought the possible wayes of opening its body with great variety of Menstruum's, to extract from the center of this mixt the noble Remedies which Nature hath implanted in it. I can even say that there is no natural product upon which so many, either vegetable or mineral Liquors have been tryed; and to prove the truth of this Assertion I shall only here rehearse some of the principal, which are all manner of distilled Vinegars, Juices of Berberries, Lemon, Quinces, Orange, spirit of dew and Honey, acid or sharp spirit of Turpentine, the liquor ot Birch-tree, the spirits of *Guajacum*, Box, Juniper, tops of Alder and Service-tree; spirits of Tartar, Salt, Vitriol, Sulphur or Brimstone, the tempered spirit of Wine acuated with those salts, the burning spirit of Coral it self, the vinegar or acid Spirit of the same, and finally the spirit and phlegm of *Saturn*; but above all, the most active and efficacious is the spirit of *Venus*. whereof we have already spoken somewhere else, and will give a description in the Section of Metals.

I have not thought it out of purpose to intimate the variety of these Menstruum's, to make it appear more evidently how many operations have been begun and finisht upon Coral; and that when the Chymical Apothecary shall consult any of the Authors that have

have treated or it, and finding so great a difference shall doubt to which part he may best and more safely incline, he may have a guide herein and be conducted through this Labyrinth by the thred of Experience which we our selves have made thereof. Wherefore we will give examples how to extract in the best manner the salt of Coral and false Magistery; then how to make the true which ought to be dissoluble; and in the third place we will give the method of extracting the Tincture thereof, and finally how the true Syrup is to be made, and that he may have a true and full Idea of the vertues of Coral, and affix it to one of these four Remedies, according to their corporeity, spirituality and their Dosis. We have thought fit to prefix the general and particular vertues, which both Ancient and Modern Writers have attributed to Coral, which are these: The general vertues are to be astringent, cool and dry, strengthen and corroborate the heart, ventricle, liver, and purifie the masse of the blood, whence it is given against the Plague, venoms and malignant Feavers. It chears up the internal senses, as also the external; stops all kind of Fluxes of the Belly, Womb and privy parts. *Paracelsus* saith, That Coral of a high colour worn about the body as a preservative, frees the party from fear of Witchcraft, Incantation, Poyson, Epilepsie, Melancholy, danger of evil Spirits, or touch of Thunder.

How to prepare rightly the salt of Coral.

TAke as much well chosen red Coral as you will, dry, hard, and of a high-coloured red; beat it in a brazen Mortar well cleansed with its Pestle to a course pouder, and thereof put ℥ iiij. in a Matrass, and gently pour upon strong and pure distilled Vinegar: I say gently and by degrees, because if it were poured too much at a time, there would immediatly arise a sudden ebullition by the action of the Dissolvent upon the dissoluble Body, and so part of the dissolution should run danger to be cast away; therefore must you act with prudence and patience until the violent action of the Spirit be allayed, then may you continue boldly your pouring of the Vinegar all at once to the height of four fingers

gers: and having placed your Matrass in ashes or sand, stir it often until the Vinegar shows no more action or is grown altogether insipid, which is then a clear testimony that all its sharpnesse is lost by the action it has upon the substance of the Coral; after this draw by inclination this Spirit so impregnated of the Coralline salt, and pour on fresh to continue your extraction: and thus digest, extract, and draw off until no more of the dissoluble substance of the Coral be left; then filtrate all the dissolutions being cold, because if you did it whilst they be warm, the heat would make some small terrestrial corpuscles to penetrate through the Filtre, which would hinder the purity and Dissolubility of the salt; all these dissolutions being filtrated, put them in a Cucurbite in Sand, and draw off the moistnesse with a moderate heat until a white Ring appears about the Vessel: then cease the fire, for this is a sign that the Liquor is too much loaden; touch not the Vessel till all be cold, because it would hinder the chrystallization of the salt which makes it more easie to dissolve and more pleasant to sight; the remaining Liquor separate by inclination to continue the evaporation of it in a Dish till in the bottom appears a dry salt, but it will never be so fine nor so good as the first. But it may be objected, that the evaporation of the Menstruum could sooner be performed in Dishes or an earthen Pan then in a Cucurbite covered with its Still-head; which I grant, but deny that it could be so cleanly done: for it would be impossible for the Artist to hinder the dust of the coals which must continually be stirred in a Laboratory from spoiling and defiling the Salt; and above all things cleanlines in Chymical operations is to be studied. There is nevertheless another Chymical Philosophical Reason which may oblige him to draw off the Menstruum in a Blindhead covered with its Still, *viz.* That he may know by this way when the spirit of Vinegar shall be altogether changed, and that which drops down becomes altogether insipid and as void of salt as Rain-water; moreover, this water which he draws off is not useless, since it is much better then many other distilled Waters to make Juleps thereof in burning Feavers: For in this Water remains hidden a Spirit imperceptible to the taste, but very subtil and capable of doing much good to sick persons: secondly, the salt of Coral will be finer and purer,

and

and likewise of more vertue, because by this slow distillation it gets more subtility and refinednesse, which becomes more capable of producing its efficacy.

Here we must resolve a difficulty of great importance; which is, that almost all the Authors which have treated of the Practice of Chymistry do prescribe, that after the salt of Coral and all others have been prepared and drawn with distilled Vinegar, they should be dulcorated by several dissolutions and evaporations, least the sharpnesse remaining in those Salts be hurtful and of prejudice to the bodies of sick Patients, wherein to speak truth, they are much deceived and are to be blamed: for that salt which they pretend to take away is absolutely necessary; and I am bold to say, that even in case they could remove and wash it off by this way which they propound, that, what should remain, would absolutely be useless, not to say hurtful. For as Vinegar is but a fixed Wine by the predominancy of a Tartarous acid Salt over the sulphureous volatile spirit of the Wine, we must acknowledge that it is nothing else but a liquid Tartar, yet involved in many impurities: but the Vinegar being distilled, it turns to a liquid Tartar more refined and more subtiliated, which can have no more of danger in it then the *Cremor Tartari*, unlesse it were by reason of its phlegm. Now after this Spirit has dissolved the Coral, and that the Artist draws off this phlegm, the subtil Tartar of the fixed Wine joyns and incorporates with the Coral, and frames that which is called *Salt of Coral*, whose only vertue proceeds from the union of this volatiliz'd Tartar joyned with the Coral, because it is this Salt which conveys the Coral into the last digestions of the body, and drives away the sensible and insensible transpiration, and by Urines all the peccant humours and impurities against Nature harbouring in the Masse of the blood. But for a clearer proof we will set this truth before your eyes in the immediatly following Preparation.

How to make the false Magistery of Coral.

YOU must dissolve the Coral in distilled Vinegar, in the same manner as we have prescribed for the extraction of the Salt, and filtrate the dissolution, out of which draw back again the two third parts of the menstruum by distillation, and the Vessels being cooled, set the remaining liquor in a Glass or white earthen dish, and pour upon drop by drop dissolved salt of Tartar, which improperly is called *Oleum ♃ per deliquium*; and you shall find a white coagulation, which is nothing else but the earthly and stony substance of the Coral returned to a body which leaves and forsakes its dissolvent, which is this sharp salt of Vinegar. Now all the lixivial salts which are made by Calcination do kill the sharp ones, which causes the dissolvent to quit the Body which it had dissolved, and so it is restored to its self again and precipitated wanting that subtil Salt which did render it visible in the Liquor; after this pour what swims above this white substance, and put clear water upon to edulcorate it, and so continue doing till the water comes off as tasteless and insipid as when it was poured on; then dry gently this white substance, and you shall have that which is pretended to be Magistery of Coral, which is (to say the truth) nothing else but a fixed and astringent earth, much worse and less safe then plain Coral prepared, or purely reduced to a very subtil powder. For they that shall say to commend this Magistery that it conduces to laskes of the belly, and strengthens the weak and debilitated stomack, and consequently ought not to be prescribed out of the Rank and Commerce of useful Remedies, must know, that the efficient cause of Lasks or Fluxes and loosnesses of the belly, and debility of stomach, is for the most part nothing else but a harsh serosity sharp and full of malignity, which causes an ill colliquation not only of nutriment, but also of the very substance of the parts: and the pouder of Coral shall be capable sooner to remedy that then the pretended Magistery, because this acid against Nature shall act upon and destroy it, as by experience it is seen, that Coral sweetens Vinegar, and that so the cause being removed the effect must cease. But it will be much better to make use-

use of the salt of Coral, wheresoever there shall be occasion of using a Remedy, because that besides it shall correct this malignant acidity, it will expel and evacuate by Sweats and Urines those substances which have been altered and colliquated, and consequently that effect which is intended by the Physitian shall never fail to come to passe. But this pretended Magistery can never be well used in such a case, because it is fixt, and the distilled Vinegar, or even corrosive Spirits can have no action upon it: by which it appears that it is unsufficient and uncapable to destroy or alter that sharpness agarnst Nature, by which the loosness of the belly and relaxation or weakness of stomach is wrought, and therefore it is altogether unprofitable in the use of Physick. But it will perhaps be urged again, that it may also be precipitated without spirit of Vitriol with its own oyle, or oyle of Sulphur, or spirit of Salt, and that it will thus be mended and exalted, which we deny again; for, were there any good to be expected from these Magisteries, it would be from that which is precipitated with liquor of ☿ rather then with these Spirits, because it would yet be more fixed then the other, and so consequently less capable of action. But we need not speak any more of this, since *Paracelsus* in his sixth Book of his *Archidoxa's* saith, That a true Magistery must almost in an instant penetrate our whole body by the quickness and subtility of its parts: by which it may manifestly appear to be something else then these fixed Earths uncapable of all action, much less of penetration, being destitute of all manner of salt and spirit, from the activity whereof all actions and powers are depending. And this shall suffice upon this Subject: let us come to the true manner of preparing a Magistery answerable to its name, that is to say, a Magisterial and principal Remedy.

How to prepare the true Magistery of Coral.

WE shall not use in this operation a simple distilled Vinegar, neither the body of any Salt to open and penetrate the body of the Coral, without imbezling its power and seminal Faculties: contrariwise we shall preserve them, and rather encrease by the help of a volatile Spirit, penetrating, active, and not

working as Corrosives which cause indeed a dissolution of substances, but alter and destroy the vertues thereof; it is that wonderful Spirit of ☿ we make use of to prepare a true penetrative and dissoluble Magistery; for this true Philosophical Vinegar shall reduce the Coral as it were to its first Being, or to a spermatick Juyce, without altering nevertheless the goodnesse of its principiant Sulphur, because this noble Dissolvent is drawn off again with the same taste, vertue and dissolutive Faculty which it had before its action upon Coral, and may be afterwards yet employed for the like operation or any other whatsoever, which is none of the least Mysteries of Art and Nature; for the discovery of which we are beholding to that wonderful German Physitian *Zwelfer* yet living, who together with the invention of this secret, hath imparted us the manner how to use it.

To attain then to the Art of making a perfect Magistery; Chuse ℥ iiij. of the best red Coral you can meet with and reduce it to pouder, which being put in a large and Capacious Matrass, pour upon softly and by degrees for fear of violent ebullitions ℥ xx. of well rectified spirit of ☿; and all its action being ceased and allayed, put the Matrass to digest in a vaporous Bath the space of a Natural day; which being over, filtrate all the Liquor, and you shall find all the Coral to be dissolved, and that the residency remaining in the Filter is nothing else but a fat and muddy earth, which contains the impurities and feces of Coral; put the Filtration in a Cucurbite in *B. M.* cover it with its Head, and draw off again your Spirit with so proportionate a heat that the drops may but follow one another: and thus continue till the matter remains in the bottom of the Vessel half dry; then cease the fire and put up the Spirit in a Vial for it is as good as before. After this wash what is remaining in the Filter with ℥ viij. of Spanish Scorzonera water, mixt with as much of second Cinnamon water; for some part of the Magistery yet remaining behind will dissolve in these Waters; filtrate them and dissolve the substance remaining in the Cucurbite; and if this proportion of water should not suffice, take ℔ ß. more to perfect the Solution, which filtrate very cleanly, and put all the filtrations in a Cucurbite, then cover it and place in *B. M.* drawing off all the waters to a dry bottom, so shall you have a Cephalick and Cordial Water, excellent against

Epi-

Epilepsies and Convulsions both of young and old; and in the bottom of your Vessel shall you have a true Magistery, melting presently, and suddenly in the mouth and in all manner of Liquors, endowed with almost innumerable vertues. The Dosis must be from v. *gr.* to xx. in Broths, Wine, or the very water extracted from it. It is one of the most soveraign of Cordials, and a Specifick against Melancholy and Madnesse; it is likewise an excellent Remedy against Scurvy, for it cleanses all the masse of the blood by all the several natural emunctories, and almost insensibly; finally it is a true preservative against malignant Diseases, because it strengthens so wonderfully the Ventricle that it hinders totally their seminary; and as the Venerean Pox hath its only original from and its seat in the corruption of the blood, which by progresse of time infects all the other parts, by reason of the venenosity which serosities convey with that universal Aliment; so there is nothing that will better either stop or hinder it then this noble and admirable Magistery, because it corrects or evacuates sensibly or insensibly whatsoever does foment or entertains corruption in the masse of the blood.

Of the Tincture of Coral.

THere is nothing so common in the Mouths and Writings of Chymical Artists as Tincture of Coral, and scarce any that hath medled with the Art, but pretends to have the surest processe and way of making it, and moreover to have wrought miracles therewith; but there is a vast difference between words and deeds: for it is easie to speak boastingly, but hard to prove this truth by reality. Now as all Authors, but chiefly *Paracelsus*, do attribute to this Remedy extraordinary Vertues, so is it very fitting to be prepared against the Delusions and surprisal of those who pretend to the Art of making of it, and who keep it as a particular knowledge and select to themselves, being not willing to impart so much as the manner of their preparation and extraction, much less the matter out of which they take their Menstruum, whereof they make use in the drawing of this Tincture. The truth is, it is not without grounds we may suspect their capacity; for they that boast

boast themselves with the knowledge of making this Tincture, are oftentimes altogether ignorant what Tincture is, or what Menstruum. Let then all those that will attain to the truth of it know, that the greatest part of these pretended Tinctures, are nothing else but dissolutions of the body of Coral if it be whole and without previous Calcination; or the only exaltation and rubification of the Menstruum employed about the Coral calcined by a simple Reverberation, or with addition of some salts; for calcinated and Reverberated salts communicate themselves to the Liquors used for Extraction, and so do exalt and colour with red the volatile salt of the Menstruum, by which the most part of those which hitherto have believed to have made the true Tincture of Coral are deceived; But the truth is easily discovered by precipitating or evaporating of the same; for by these two actions the salt or body of the Coral is discovered, which was before invisibly dispersed through the Menstruum. Now the Tincture of Coral must be free from all these mistakes; it must be pure, it must be simple, not loaded with any other substance or body, because the internal sulphurs of things have a great irradiation and large extent in their vertue, but scarce are comprehensible and brought under the senses by their corporeity. Moreover, the first or second Menstruum's which are employ'd; must not be capable of themselves to contract any colour, though long kept in digestion without addition of any other mixture. Our Artist being sure and well resolved in all these particulars, if with these precautions he draws any Tincture from Coral, he may be very confident it is true, and that it shall produce those effects which Authors do attribute unto it. I can give no better nor more Philosophical description thereof then that which follows.

True processe of the Tincture of Coral.

TO arrive to the perfection of so noble a Medicine time and matter must not be spared, and moreover it must not be undertook by a Novice in Chymistry, nor thought to be performed by him at the first brunt; for he must be capable of Distilling, Digesting, Cohobating, Rectifying, Extracting, and all with Judgement

ment and proportion. Wherefore we will begin by the Preparation of necessary Menstruum's for the first and second Extraction, and the Chymical Artist must well consider these two Menstruum's, for they are not without a Mysterie.

The first Menstruum.

℞ ℔ iiij. of Tartar of *Montpellier* well cleansed and purified, as we have intimated in the preparation of Tartar; reduce it to a subtil pouder, and mix exactly with ℔ j. of green Vitriol of Martial nature: put this mixture in a large and capacious Matrass, and pour upon ℔ iij. of phlegm of Vitriol impregnated with its volatile sulphurous Spirit; this done, stop the Vessel with its Blindhead exactly fitted and luted, and put it in digestion in cut or shred straw in a vaporous Bath to a moderate heat during the space of seven dayes; that being ended, have a Cucurbite well luted up to the middle with a good Lute capable of resisting the fire, and well dryed, which accommodate in a Reverberatory Furnace, leaving four Registers in the corners of the Furnace for the regulating of the fire; pour in this Cucurbite what hath been digested, and immediatly cover it with its Limbeck-head or Still, luted as is convenient, and fit to it a Recipient with the joints also luted: then give it a gradual fire gentle and moderate untill the drops begin to follow, then entertain the fire in that degree until the Still drops no more, at which sign encrease the fire by degrees until all the vapours be over, and the Still-head begins of it self to grow clear, then cease the fire and let all cool. Separate from the distilled Liquor the oyle of Tartar by filtration, and rectifie the Spirit on ashes to a dry bottom, and so shall you have the first Menstruum to extract Corals without any previous Calcination. But before we proceed further, we must give to our Artist warning not to lose the matter remaining in the bottom of the Cucurbite after the first distillation: contrariwise he must dissolve it in distilled Rain-water, he must filtrate and evaporate it slowly to a dry bottom, and he shall have a vitriolate Tartar not to be despised: for it is a great opener & dispilative for all the obstructions of the Ventricle. The Dosis from iv. *gr.* to ℈ ß. in Broths, white Wine, or some decoction of *Scolopendra* or Spleenwort & Chichory or Parsly Roots.

The

The second Menstruum.

THis Menstruum is ordinarily called *Aqua temperata*, temperate Water, as also the sweet or dulcified spirit of Salt: for it is made of equal parts of very pure Alkoholiz'd spirit of Wine and spirit of Salt very well dephlegmated, which you must mix together by degrees; then distill and bring over the Helm in ashes four or five times, or what is yet better, until they be inseparably conjoin'd and united together by reiterated distillation: this being performed, you shall have a very good preservative and curative of the Plague and all contagious diseases, because it hinders all manner of corruption, preserves the natural parts in their equal temper and necessary vigour; this also is the Menstruum which shall be us'd to keep in it self the internal sulphur of Coral, which the first Menstruum did yet hide, or the shadow of the Body.

To make the Tincture of Coral thus.

℞ As much of the fairest and reddest Coral you can meet with, and reduce it cleanly to a very subtile pouder, which put in a Matrass and pour upon of the first Menstruum about ℥ j. or ij. at once, stirring it nimbly, then begin again to pour fresh Menstruum, and stir until your matter be covered with it the height of four inches; stop your Vessel with a Blindhead, and put to digest in a vaporous Bath in shred straw during the space of three weeks, with a heat a little more then lukewarm; after this open the Vessels, draw off the red Tincture by inclination, and keep in a Vial; then reaffund new Menstruum upon the remaining body of the Coral, and continue the digestion and extraction untill the Menstruum takes no more of the colour: then join all the Tinctures and filtrate them, and having put them in a Cucurbite on sand draw off the liquor to a dry bottom in a moderate heat, and you shall find in the bottom of the Glass a red pouder, which hides in its center the internal sulphur of the Coral, which constitutes its

its colour and vertue: put this pouder in a circulatory Vessel called *a Pelican*, and pour upon it of the second Menstruum called *temperate water* the height of vj. fingers; lute exactly the upper orifice of the Vessel; after you have stopt it with a Glass-stople, place it in Balneo and keep in digestion during the space of one Philosophical Moneth, and this sweet and pleasant Menstruum will draw to its self this wonderful Sulphur, and take a very pleasant colour. This done, cease the fire, open the vessel and filtrate the Tincture, to separate the feculency and sediment which remains in the bottom of the Pelican; put then the filtration in a Cucurbite, and draw off the two thirds or half of the Menstruum, and keep choicely the remainder, as one of the principal Remedies of a Spagyrical shop. Let not our Artist presume to cut off any part, or shorten the space of forty dayes, though he perceives his Menstruum to be tincted: for the circulation must perform the extraction, exaltation and union, which operations do require no less time; for the Chymical Apothecary which desires to be successful in his work, ought to follow the motion of Nature which works nothing but slowly, and must ever have in his remembrance the saying of our great Master *Paracelsus*, that *omnis precipitatio à Diabolo*; and that he that doth well, hath ever done soon enough.

But before we prescribe the Dosis and vertues of this Tincture, we must satisfie Mens minds, that it is not only good in opinion and fancy, but in reality. To this end let us make a judicious reflection both upon the matter and the Menstruum's. There is no body but knows and confesses that Coral hath many singular noble vertues, so that both ancient and modern Authors have all unanimously acknowledged, that this vertue resided in its redness, and have all stroven to finde out some liquor analogous to our Nature wherewith to extract it. This is plain in our processe; for the Ingredients we employ for the distillation of the first Menstruum, are good and harmless each of them asunder; but besides there is a mystical and philosophical union made of them by the distillation and digestion that hath been previous, so that the sharpness of the Vitriol hath been moderated and sweetened by the Tartar, and by their action and reaction each upon the other, and thus of this match doth result a Spirit friendly to Na-

ture, and free from corrosiveness, which may take away all fear that it might have altered the seminal principles of Coral: contrariwise, it only has freed them from the commerce of the matter whereby they were fettered, and rather exalted them to a perfection then debased their worth. As for the second Menstruum, I believe there is no body will take upon him to say ought against it, since the spirit of Wine and that of Salt are two real conservative Balsom's, not only of living bodies but even of dead ones, while they are yet asunder: But who shall not admire the wonderful secrets of Art and Nature, capable to make an union of the subtileſt and most volatile of all Spirits, with one of the most fix, and thereof make a neutral and middle compound, which hath nothing left either of the taste, or any other quality of the two taken asunder! so that I conclude that this Tincture cannot be but one of the most excellent Remedies which Chymistry can afford, and therefore hath it this prerogative to be one of the first and principal of all Remedies to purifie the masse of the blood from all the impurities by which it may be tainted: either Leprosie, Venerean Pox, or Scorbute; it strengthens the Heart, chears the Senses, drives away Melancholy, hinders sad Dreams, stops Hemorrhagies, allayes inward pains, strengthens the Stomach, appeases the irritation of the Mother, corrects roding vapours of the Spleen, removes obstructions of the Liver, Mesentery and Pancreas or sweet bread, provokes and stops monethly Courses, purges and cleanses the Kidnies and Bladder, and strengthens the Brain and all the functions of the Body and Mind: briefly, I should never have done to rehearse here all what antient and modern Writers have said in praise of this Tincture; and to speak ingenuously, nothing but great matters can be expected from all the Remedies which are made by volatile Spirits animated with the strength and vertue of internal Sulphurs of things, and chiefly those that are of a Solar Nature, because these noble Medicines do in an instant as the light penetrate into our last digestions, and as they go imprint in all the parts the stamp and Character and the Idea of their Balsamick vertue, which causes them to remove and drive away all the impurities which the vice of digestions had left in them. This Tincture may be used by the way of a preservative morning and evening in old Wine,

Wine, or Hydromel or meade old and well digested in Broth, or some proper water to the end which is intended. The Dosis from j. drop to iiij. and for the cure of Diseases, it must be given to the sick in ordinary or Chronical Diseases from j. drop to x. in Menstruum analogical and proportionate to the Disease, and that during the space of forty dayes, because that interval is sufficient to renew and repair the whole Body in the most obstinate Diseases, and so proportionally under that time according to the exigency of the distemper and malady; therefore we must leave it to the judgement of the Physitian; but because all are not capable of preparing this Remedy, and knowing the Genius of our Nation to be too impatient to allow themselves the requisite time whereby they may possess the Tinctures and Arcana's: I have thought it fitting to join and teach here the manner of preparing a Syrup of Coral, by a quick and easie way, and which may be made use of instead of this Tincture; but with much difference of vertue; and I know not whether Apothecaries will take the pains and be at the necessary charge of the confection of this Syrup, though to speak truth, it may prove the best piece of their furniture; yet I have some hopes that those that are careful and do intend the good and advantage of their Neighbour, and discharge honestly the trust of their employment, shall furnish themselves with the one and the other of these two Remedies.

To prepare the true Syrup of Coral.

THis Syrup is commonly used to strengthen the vital and animal faculties, and as it is its chief scope, so will we give a description thereof which will in its contents follow the intention of the Physitian; nevertheless some other liquor may be substituted, when the Physitian intends to specifie and render it more particular to some proper use, as Cinnamon in water, juice of Pomegranate and Quinces, juice of Melissa or Balme and Cochlearia or Scurvy-grass, and so of many others according to the Indication which shall be taken by the Artist; this nevertheless may be used in the room of all the others, because as it generally doth strengthen Nature and its functions, so is it capable to correct all the particular vices thereof.

To this end take some of the uppermost rind of Lemmon and Orange *ana* ℥ iij. shred them very small and put in a Cucurbite, pour upon it ℔ j. s. very good Spanish Wine or some other generous Wine; put in the nose of the Still a knot of ℈ ij. of grains of Kermes wrapt in silk Tiffany, with ℈ j. of the best Saffron, ℈ ß. of the best Ambergreece in pouder exactly mixt with the other two bodies, cover your Cucurbite with a Still head, and having luted exactly the joints thereof, as also the Recipient which you shall fit thereunto, place it in Sand and give fire by degrees and very slowly, until you have extracted about xij. or xv. ℥. of Spirit. Then take ℥ ij. of dissoluble Magistery of Coral, and dissolve it in ℥ x. of this distilled Spirit, adding ℔ j. of very fine Sugar reduced to an impalpable pouder, stir all together and place it in a circulatory Vessel well luted to the slow heat of a vaporous Bath, as long as there shall be need to perfect the dissolution: then let the Vessel cool and put the Syrup in a well stopt Vial, and you shall have a soveraign Remedy against all weaknesses of stomach, all diseases of the spleen, and above all a great chearer of the Heart and Brain. To know the noble uses of this Syrup, and wherein it may be employed with successe, you must recal to mind what we have said concerning the vertues attributed to Coral, and its Salt, true Magistery and Tincture. The Dosis shall be from ℈ j. to ℥ j. either alone or in some convenient liquor. We shall deliver here no other Example for working upon Pearls then this we have done upon Coral; For an Artist be he never so little skilful, cannot but know the difference which must be made in working upon that precious and costly matter; and if he needs some other preparation, let him consult with those who have written about it more punctually.

Of the Lapis Judaicus, *and its Chymical preparation.*

THe *Lapis Judaicus* is of the form, shape and bigness of an Olive, soft and easie to crumble, it is streakt with lines or rayes equally distant one from the other as if they had been framed with a turn, it is of a white ash-colour, it is call'd *Lapis Ju-*

Judaicus, because found in *Judea*; there is some also found in *Silesia* in *Germany*. Some will make it distinguishable into male and female, and appoint the female to be us'd for the Bladder, the male for the Kidneys, but all that is nothing else but a meer Chimera: wherefore we will lose no time upon this speculation, to bestow it the better upon some useful matter, *viz.* the preparation thereof which will be a pattern and model for preparing also the Linx-stone and Spunges. Take then as much of Lapis Judaicus as you please, and reduce it to a gross pouder, and mix with equal weight of beaten sulphur or Brimstone, then put all in an earthen pot not glazed or in a Crucible, and calcine it by degrees with a circular fire until the Brimstone takes fire and be fully consumed, then put the calcined matter in a Matrass and pour upon spirit of vinegar of Hony four inches high, then put it to dissolve and digest in ashes, slacking often the Vessel, and when the Menstruum shall be well coloured draw it out by inclination and pour fresh upon it, reiterating this processe three times, that the salt contained in the matter may be all extracted, then filtrate the dissolutions, putting them in a Cucurbite, and evaporate slowly in sand to a dry bottom, and thus shall you have the salt of the Lapis Judaicus, which afterwards you must purifie by several reiterated dissolutions, filtrations, evaporations and coagulations until it be pure and clean: But note, that if you evacuate the Menstruum with whom you make your purification with a little of spirit of Salt, your work will proceed more speedily, and the salt shall be more efficacious and of a better taste; this salt may be kept for twenty uses either dry or dissolved, and this dissolution is properly that which they call *the oyl of Lapis Judaicus*, in case it be given dry in Broths, in white Wine, or some water or diuretical Decoctions. The Dosis must be from iiij. *gr.* to xij. and if the liquor be given dissolved in the same Menstruums in a double proportion, by reason of the moistness drawn from the salt (which encreases the weight) the vertue of the Salt and Liquor is to remove all difficulties of Urin, proceeding of obstructions caused by tartarous, slimy, muscilaginеous, sandy & stony matters which are found in the Kidnies, Ureteries or Bladder. These Remedies also drive away the gravel and small stones from all other places where they use to grow for the most part.

Of

Of Talk *and its Chymical Preparation.*

THere are many who set no difference between the specular or shining stone which the antients did call *Selenite*, or *Lunary* and *Talk*, but they mistake very much: for it is a stone differing from the other by its inclination to friability, its green colour and fixednesse. There are two kinds of Talk, the white *viz.* and the coloured: the white differs again in its kind; for there is the *Venetian* Talk which is greenish and breaks in thin scales, being esteemed the best and the purest. There is also the *Moscovian*, not so much valued as that which comes from *Venice*, but it has not a despicable quality, though it seems something less pure. The second kind of Talk is coloured and is red and black, whereof *Paracelsus* makes mention in his Chronicles of *Carinthia*; Chymical Authors use sometimes in an ænigmatical Language to call Talk *the Star of the Earth*.

We shall give an Example of such operations as may be made upon a coloured and uncoloured Talk, that we may not be reproached, the neglect and passing by of a stone, the preparation whereof hath tormented so much and so violently torments yet every day, the brain of those which labour in the extraction of its oyl, which hath ever been the Idol of the most famous *Courtesans*, for the help they pretend to receive from it in the preservation and encrease of their beauty. I am nevertheless rather of their mind who believe that the oyle of *Talk of antient Philosophers* is an operation upon Luna or silver; or even the great work in white, which possesses the highest lustre of white that it is possible to see in any substance, and must infallibly be capable of performing that which is hoped from this Oyle of Talk so much cryed up hitherto.

The principal operation made upon Talk is the calcination of it; for this stone being of extraordinary fixedness, it must be the scope of our Artist to open it by this first preparation: and those that have kept pretty big lumps of *Venetian* Talk six intire weeks in a Glasse-house fire, without finding any alteration in its weight,

colour

colour or aptness to crumble, are capable to deter and astonish any that takes in hand this work, to reduce it in some unctuous matter, and make that noble white thereof which Ladies do with so much curiosity and at so great charges seek for; and as there is none of them which call themselves *Chymists*, and pretend any thing to the knowledge of this noble Art, who doth not boast to have some secret Receipt thereupon; we shall nevertheless ingeniously confess, that this matter is too fixed to pretend any liquid substance from it, unless it be by the help of some salts capable to penetrate this stone: for I find no experience or Reason that can convince me to the contrary, after I have tryed the invincible fixedness of the true Talk, whensoever I went about to calcinate it without any addition. But making use of some Salts and Spirits, I do not deny but that a good Losmetick may be made to change and whiten the skin: But it cannot be avoided that the sulphur of this stone should ever keep with it self some portion of the fatness of the salt or Saline spitit which returns to a Body. Therefore great discretion and heed ought to be had in making use of these things, lest the skin be worn out and ulcerated, instead of smoothing and rendering it fair, delicate and white.

The Chymical preparation of Venetian *Talk.*

TAke of true *Venetian* Talk, pure, clean, and of a greenish colour and reduce ℔ ℈. in very subtil pouder in an iron Mortar, made almost glowing hot in a good fire, as also the end of the Pestle to be us'd, or which is yet the best way; file it with a soft File into a very subtil and small pouder; mix diligently this ℔ ss. of Talk in pouder with ℔ j. of very white Tartar and very dry, then put this mixture in a great Crucible in a Wind-furnace, and calcine it with a fire of the last and utmost degree during the space of xij. or xvj. hours, which time expired, beat the mass to pouder in a hot glowing Mortar, then put the pouder in a gray or white earthen pan in a Cellar, to convert the salt of Tartar into Liquor, and let it run in a small Dish by the mouth of the pan: all the salt being separated, dry the remaining substance, and with four times as much weight of very pure Salt-pe-

tre

ter, put the whole in a new ſtrong Crucible able to bear the violence of the fire; put this Crucible in a wind-Furnace, and give it fire by degrees until you bring it to the higheſt pitch, and your Talk will melt into a very white and almoſt tranſparent Maſſe. This Maſſe put in a cool and moiſt place, and it will diſſolve in time into an unctuous and glutinous liquor. Which Liquor is to be uſed for taking away and blotting out of all ſpots, roughneſs and ſcurf and excreſcences of the face and skin, in the ſhoulders, breaſt, arms and hands; but this Liquor muſt be dextrouſly and diſcreetly applyed with a Pincel and very ſuperficially; and above all care muſt be taken that it ſhould not lye long upon the part, which muſt immediatly be waſhed with water of white Lillies, Bean-flowers, or Nenuphar flowers water turned white with ſome few drops of Tincture of Benjuin.

But when you will uſe this unctuous Liquor without any fear of danger, put ſome part in a Matraſs and pour upon alkoholized ſpirit of Wine, and digeſt together in a heat of Horſe-dung or vaporous Balneo during the ſpace of three weeks, then draw off the ſpirit by diſtillation in the ſame Bath, and cohobate at leaſt twenty times, adding every time ℥ iiij. of new ſpirit of Wine; and ſo ſhall you kill all the corroſiveneſs which was remaining in the Liquor, and have a ſubſtance fitter then any other whatſoever to clear and whiten the skin, provided that the hands and face or other parts be well and duly cleanſed before with ſome good paſt, before you make any application of the Liquor.

To prepare a cream of Talk, of leſſer trouble and work then the forementioned.

TAke q. v. of Talk reduced into a very ſubtil pouder, which ſprinkle two or three times with ſome excellent diſtilled Vinegar in a Glaſs Diſh, and that until it be reduced to a kind of paſt, which ſtir with a Glaſs ſpatula two or three hours, encreaſe the Vinegar gently by degrees until you have poured enough for the Talk to ſwim in it boyling, then put the Diſh in ſand, and give it a gradual fire until the matter boyls, and inſenſibly

bly will raise on the top thereof a fat scum, which you must very carefully gather with a Scimmer, and thus continue till no more will rise: after this evaporate gently the superfluous moistness of the Vinegar, and keep the remainder for use, as being one of the best Cosmeticks of the world. And if you will use it to wash the face or other parts, dissolve and mix some part thereof with phlegm of spirit of Salt, and immediatly apply a Pomander or Ointment made with marrow of sheeps Trotters, Sperma ceti, Virgin wax, and a little Pork suet well washt; in this Pomander mix some of the cream of Talk, and a few Benjuin flowers, and the clearness, whiteness and pureness of the part anointed therewith shall last above a fortnight.

The Chymical preparation of red Talk.

IT is not sufficient to have shewed some kind of preparation upon the white Talk, which conduces only for outward beautifying, but we will also deliver the manner of making a good inward Remedy with red Talk. For as this stone hath a mineral sulphur in its center which participates of the Solar Nature, so must we work its extraction by the salts which are capable to open the bodies and penetrate them, to seek therein the hidden and as it were imprisoned vertue thereof.

To this end, ℞ ℥ iiij. of red Talk, and reduce it to a subtil pouder in a red hot Mortar, mixing this pouder with as much well prepared salt of Tartar according to *Sennertus* prescription, as we have taught heretofore; put this mixture in a Crucible, and calcine it together in a wind-Furnace during the space of twelve hours, which done, reduce to pouder in a hot Mortar the matter you shall find in the Crucible, and put this matter in a Matrass, pouring upon it tartarized spirit of Wine four fingers high; digest them together in the vaporous Bath, until the spirit hath got a high and red Tincture, then draw it off by inclination, and pour on new spirit. Thus continuing to digest and extract until the spirit takes no more colour, then filtrate all the Tinctures and put in a Cucurbite, to draw off the three parts of the spirit in a slow heat of Balneo, and so shall you have a Tincture inwardly loaded

with the internal sulphur of red Talk, which is a preservative and curative Remedy of the Plague and of all other malignant Diseases; this Tincture is given from iij. drops to xij. in Wine or Broth for preservarive, and if for curative Remedy it be administred to sick persons, the Dosis may be encreased of a just half proportion, and given in small Centaury, Scordium, Germander water: It is a soveraign Cordial, a Cephalick and wonderful Stomachick, which leaves no impurity in the ultimate digestions, but drives it away by insensible transpiration, by Urine, or by Sweat.

Of the Calk or Stare-lime-stone, and its Chymical Preparation.

THE vulgar preparation of Quick-lime made by violent calcination of ordinary Quarry-stones, or great Flintstones, is so common and known by all persons, by the frequent and necessary use of it in buildings, that it would be superfluous for us to say any thing thereof. It suffices us to say by the by, that it hath very little use in Pharmacy, but in some other preparations besides and after calcination: for Quick-lime hath no other vertue outwardly applyed, then to discover an ingenuous Caustick and corrosive nature: but being prepared as we shall teach hereafter, it becomes capable of supplying Remedies altogether unknown to the vulgar, both inwardly and outwardly applyed.

How the water of quick and prepared Lime is to be made.

℞ ℔ iiij. of good and well calcined Quick-lime, in whole lumps as much as is possible, such being less offended by the outward impression of the ayr and water, and whole in its vertue; put it in a great Bason and pour upon it Rain or River water half a foot high; let it be softly dissolved, and agitate it from time to time with a wooden Spatula or Slice, and the water being well loaded and impregnated with the salt of the Lime, filtrate it and keep it for use. And thus reiterate dissolving with new water three

three times, filtrating and keeping asunder. Then put the remaining Lime upon a Filter in Trochisk's to dry; it is that which in shops is called *prepared Calx* or Lime, which is to dry softly without any biting or mordacity: wherefore it is most excellent for the cure and cicatrizing of malignant Ulcers, and principally those that participate of venerean infection; it is also very good for the cure of burnings, and may be employed in Liniments, Ointments, Plaisters, and all Epulotick and deficcative pouders, us'd for Ulcers which are difficult to close again.

The first, second and third water of the quick-lime, which were kept each by themselves, may also be employed severally according as need shall require: for they are the ground and chief Ingredient of Waters us'd against Gangrenes, and for the Pin and Web and other sore diseases in the eyes. It may be so applyed even without any other addition, to wash putrid, foul and corroding Ulcers; and the best guide therein may be the experience of the Chyrurgeon, whether the first, second or third is to be used, according as he shall discover by the appearing signes, the malignancy of the Vlcer to be greater or less.

To prepare the plain Water against Gangrenes, and other Symptomes and accidents thereof.

WE must confess that this Water is one of the best Remedies which at this day are in the possession of Chirurgery to prevent the sad accidents of Gangrenes aud their sequel; and being this Remedy is so useful to publick advantage, I would not hold it longer in silence; though it will not perhaps please too many who keep it still by them as a grand secret; but this noble Medicament owning its invention to the search of Chymistry, so is it just that by the benefit of the same and the ingenuity of this Treatise it should be communicated to all Members and Practitioners of Chirurgery which are not yet acquainted with the same, that they may Charitably bestow it for the help and cure of poor sick Patients: for it is a great Gift and benefit of God, to be purchased almost without charge, and easily to be found every where, wherefore also it ought to be liberally dis-

dispensed and imparted to such poor Patients as shall be in want of it. All the secret thereof doth only consist in mixing with greater or lesser proportion, sublimate corrosive Mercury in either of the three Waters, according as it is intended and desired to be more or less strong and violent; and so the Dosis of the mixture depends upon the judgement and skil of the Chirurgeon who intends the use of it, for preventing the accidents of Gangrenes or to stop it, and prevent the encrease and progress of the same, when it hath already seiz'd upon and deaded some part of the flesh: for the spirits and hidden fire which are in this Water, animate and vivify again the natural heat, call back the vanisht Spirits, already banished by the beginning of corruption and mortification, and by their subtility and quick penetration separate the dead flesh from the quick. But in the mean while it must be observed, to mix diligently in this miraculous Water ℥ ij. or iij. of excellent spirit of Wine freed and depurated of all its phlegm, which may have two very considerable and principal ends. The first is, to render this water more active and penetrating when necessity doth urge, and the danger is at hand; The second, that the spirit of Wine may unite it self to the salts and spirits of the quick-lime and the corrosive Sublimate, and so kill and temperate them, that they may in no wise be noxious and hurtfull to the nervous or sinuous and membranous parts, which remain bare during and after the action and time of using the Remedy: and it belongs only to such as are well skil'd and versed in the knowledge of the action and reaction of Spirits and Salts with and against each other, to give a solid and pertinent reason of those effects that are produced by this admirable Remedy, after the mixture of the Calx and quick-lime sublimate and spirit of Wine. This water thus composed is not useful only to such purposes as we have said above: but it is also singular in all Wounds and Shots where there is any breaking of bones, and a great heat with much pain, provided in the beginning you add the juice of a dozen River-Crawfishes pounded alive, and sprinkled with a little phlegm of Allom.

But there is another Water yet against Gangrenes, Ulcers and sores of the eyes, besides that we have already taught, the description whereof we will give for the sake both of Surgeons and their Pa-

Patients, though held very secret by those who daily use it with great applause and success: after which we will give the description of the Ophthalmick-water, and the distillation of the true Spirit of quick-lime, which is none of the least Master-pieces of of our Art.

The wonderful and true Water against Gangrenes.

℞ ℔ xx. of Rain or River water, put them in a great pewter Bason, and throw therein iiij. pound of good unmixt or unalter'd quick-lime, and let it by a slow ebullition softly quench it self without agitation, and when you shall perceive the extinction to be performed; and that the boyling and working of the Lime is over, add thereto ℥ ij. of Arsenick in powder, and ℥ j. of good well chosen Mastick also in powder, stir all together and mingle it conveniently with a wooden Spatula or Slice, then let it setle until the matter be well gathered in the bottom, and the water swimming over very clear: then pour out all the clear, decanting it softly without stirring the bottom, and filtrate the remainder to join both again in a gray earthen Pan, adding to it ℥ ij. of corrosive Sublimate in powder, ℥ vj. very good spirit of wine well dephlegmated, and ℥ ij. good spirit of Vitriol; put all this mixture being yet unsetled in Glass bottles and keep it for use. If you make use of this water for any other purpose then for sore eyes, you must shake it and mix the bottom with the clear, and so use it against the Gangrene and all its accidents, the cure of old running sores, cancerous, sinuous and malignant Ulcers; against all preternatural and painful outward heat, and against all external inflammations; against Phlegmon's, Erysipela's, burnings and even arthritical pains proceeding from hot causes, and finally against inflamed and dolorous wounds. If it seems to be too strong or violent, let it be tempered by adding a greater quantity of spirit of Wine, or phlegm of Vitriol or Allom. But if you will use it for Ophthalmies, and small sores in the corners of the eyes or in the eyelids, you may temper it with water of juice of Plantain, or of great Celandine, or even with phlegm of Allom: but above all things, take care that the water you do use

use for the eyes be well filtrated, and that no part of the setling in the bottom of the Glass should be mix'd with it; the application of this water is commonly made with fillets of linnen cloth, and I may confidently assure, that those that shall make use thereof, will find it an infallible and sure Remedy and almost of a wonderful successe in all the particulars we have spoken of.

The manner of preparing the Ophthalmick water.

℞ One part of the first water of quick-lime, two of the second, and iij. p. of the third, mix them together and dissolve therein ℥ j, of salt *Armoniack* to each pound of water; put this dissolution in a brass copper or Bason, and let it stand therein the space of xij. or xv. hours, or until it be tinged with an oriental saphirine colour, then filtrate exactly and keep it for use in a Bottle. This water is unparalleld for all diseases and blemishes of the eyes whatsoever without reference to their original: for the salt of the Lime joined with the volatile salt of Urine, constituting the vertue of salt *Armoniack*, draws a subtil Vitriol from the Brass or Copper, which are found inseparably joined and united together in the water, and do communicate unto it a refrigerating, cooling, cleansing and desiccative quality. I will say more yet, that these three Salts so united, are capable to blunt, kill and destroy all the malignancy of those harsh, corroding and biting Salts which are mixed in the serosity of the blood, and are the true occasional cause not only of the grief, inflammation and sores in the eyes; but moreover of all itching, eruptions and Ulcers growing outwardly, and generated in the body of man: wherefore this water ought and may not only be used against the several griefs incident to the eyes, but against Itchings, Scabs, and Ulcers also. And in case it had drawn too much of the salts in respect of delicate and tender persons, or for the quick and nice sense of some parts of the body, it may be allayed and sweetened by adding Eyebright, Euphrase, Fennel, Rose or Plantain water.

To

To make the Spirit or true Magistery of Quick-lime.

TAke as much as you please of the best quick-lime you can meet with, reduce it to very small powder and grind it upon a Porphyry to an Alkohol, or impalpable powder, then put it in a Cucurbite and pour upon it by degrees very gently of the subtil and purest alkohol of Wine, as much as the Calx or Lime will be capable to drink: for you must have a special care not to drown the Lime, but let there be only so much of this Spirit, that the Lime may thereby be satiated without humectation, or appearing in any wise above it; then having applyed a Still-head to the Cucurbite, lute the joints exactly with a triple Bladder moistened in the whites of Eggs, and strowed with quick-lime, both of it and the Recipient, then place your Vessel in *B. M.* and draw off again the spirit with a slow heat to a dry bottom, and having cooled the Vessels, open them, and pour again the same Spirit upon the Lime remaining in the bottom of your Cucurbite, and go on thus distilling and cohobating with the same care and precautions until the tenth time, that by these reiterated imbibitions the internal fire wherein the Spirit, Arcana or Magistery of the Lime doth reside, may be encreased and exalted: and that no body may be mistaken herein, it is absolutely necessary to observe all the things we have said, otherwise the Artist may endanger the losse of his time, vessels, and matter. These ten Cohobations being thus performed, take the Lime out from your Vessel and grind it most subtily, duly and without intermission upon the Porphyry, and add thereto the tenth part of its weight of very pure and dry salt of Tartar, and as much of the *Caput Mortuum* of the Tartar remaining after the salt hath been drawn by Elixiviation: But th *Caput mortuum* must be newly dryed and heated before you mix it with the rest, and the mixture being nimbly and exactly performed, put all these matters in a well luted Retort, the matter not exceeding the third part of the empty space and capaciousness of it: then place it in a close Reverberatory Furnace, and to the neck thereof fit a Recipient, to which may be fitted a

Funnell

Funnel or Pipe of a fingers bore, and four inches long about the middle of the neck receiving the Retort, so that the end of the Retort's neck may just meet with the upper part of the said Canal or Pipe, that the drops of phlegm falling may directly join to the small Recipient, that is to be fitted to the said Canal or Pipe. But you must note, that you must put before in the body of the great Recipient before you lute it, ℥ ij. or iij. of alkoholiz'd spirit of Wine depriv'd of all phlegm. The Vessels being exactly luted together as much ss it may be, and the Lute dry, begin to give your fire by degrees, until that little phlegm which is about the matter be driven out, and the Artist perceiving that no drops more do fall, and that a white vapour is issuing out of the neck of the Retort, and as a small cloud creeping along the channel of the great Recipient, where it is attracted by the spirit of Wine being in the bottom of the Recipient as by a Loadstone; then let him encrease and quicken the fire more and more until all the vapours be over. The Vessels then being cooled, take off the Lute and open them, pour away the phlegm as useless, and preserve the spirit you shall find in the great Recipient, to rectifie it and separate from it the spirit of Wine if it be possible: but in case they be so united as to ascend together in the neck of the Still, put this spirit in a Glass dish somewhat thick, and warmed a little beforehand, and set it on fire with a little kindled paper; the spirit of Wine will consume and burn away, and the spirit of the Lime remain in the Dish; which preserve very carefully as one of the most wonderful Agents which Nature and Art can afford, as learnedly sayes *Basilius Valentinus*, speaking of the quick-lime. This Spirit is one of the best, the most present and safest Remedies that can be given against all kinds of Gout: for it insensibly dissolves and consumes all tartarous matters coagulated in any part whatsoever of the body, by the potent vertue and sudden penetration of the internal fire contained ie it; it is given from j. drop to v. in three fingers height of warm wine in the morning fasting; then let the Patient expect the operation thereof warm between two sheets, whether Nature determines its action by Urine or Sweat, in a condition to help and advance the Remedy; otherwise it doth act for the most part by insensible transpiration.

There

There is also a very efficacious Remedy prepared with this wonderful Spirit against the Stone and Gravel, with one part of stones of * Crawfishes and two parts of Calx of Rock chrystal, digested and dissolved in six times their weight of spirit of quicklime, and so often distilled and cohobated in the heat of ashes, that all or the most part thereof be turned into liquor: of which you must give also in a small Glass of warm Wine from j. drop to v. in the morning fasting, to cure radically all those that shall find themselves toucht with those diseases: for it cleanses so well all the passages and conveyances of Urine from that ill ferment, that from that time forward no new matter can be generated or gathered there: this Spirit dissolves and turns into Liquor all stones of what hardnesse and roughnesse soever; and contrariwise by the action and vertue of its fire fixes the most volatile Spirits; so that those which shall use it either for Remedy or for a Dissolvent, may very well be cast into astonishment and wonder that Nature should have hid so high a mystery in so vile and so contemptible a subject as quicklime is: which hath caused *Paracelsus* to say by an act of reflection and great wonder, that some do throw away and kick with the feet such a stone or flint, as would be to him of a greater Revenue then a Cow, did he know the mysteries which God and Nature hath concealed and layed therein.

* It may *Crabs eyes*, so called in the shops.

Section III.

Of Metals.

METALS are hard bodies, ductile and malleable, proceeding from a saline and Mercurial juice, coagulated in the earth by the strength & vertue of the heat of its own sulphur. Now as we have said above, that all things had their original from light, which by its ejaculation and irradiation did imprint and stamp the Idea and Character of its vertue in water as in a general and convenient Matrix, to enable her afterwards

terwards to supply both matter and Form, Body and Spirit, Salt, Sulphur and Mercury, all physical generations: so can we now more pathetically and particularly give to understand the generation of Metals, because the water being once stampt with the Character of Light, and having received the Spirit and Salt which flow from the same Spring, the internal Sulphur begins immediatly to concoct, digest and ripen the Embryos by him precipitated, whether animal, vegetable or mineral: and the water being furnished with this fermentative and generative principle, yet undeterminated and apt to be made any thing, is conveighed and driven into all the general and particular Matrixes, which do determine and modifie it according to the Idea and Character of their natural predestination in their Creation; For as God hath once created all substances, so has he given them means of successions, and perpetuating and preserving themselves, which is nothing else but that which we call *Nature*. Now assoon as the water is received in a metallick Matrix or in a place fitted and destinated by Nature to the generating of Metals, the spirit of Salt which is in the water yet undetermined and of a general inclination, receives the vitriolick stamp, character and Idea, which is the first determination to Metallick nature, and the internal sulphur of this embryonated Vitriol, works without any interruption to digest, ripen, and concoct and coagulate the water by him impregnated; so that the first visible principle of Metals is a Vitriol more or lesse pure, and more or lesse mixed with metallick seeds, according as the Matrix, water and salt are found to be pure or mixed. And thus the *Archeus* which directs metallick productions, doth lead and guide them safely and by a gradation altogether surprizing, and wonderful to the scope and end of their Natural predestination. For it alters and changes the Vitriol into sulphur of a Metallick nature, as it is proved be the examining of Marcassites, which do already by their weight appear to be metallick, as also by their hardness and colour, and have nevertheless in them no more then a Vitriol altered and modified by the action of the fire of its sulphur, as it may be proved by their Anatomy made by the help of ayr and fire, which the Artist doth make use of to decoct and bring them again to their first visible matter, which is nothing else but a Sulphur and Vitriol, though these Marcassites

calsites contain also in themselves some embryonated Metals, as it appears by the digestion and maturation of them made by fire, Salts and Spirits, after which Metals of divers kind and different nature may be extracted, and so *illud quod occultum erat fit manifestum*; in so much as plausibly and lawfully Marcassites may be called the Rudiments and imperfect seeds of Metals: which makes me wish that pure Legitimate and true Marcassites of all Metals and each in particular might be recovered, that the chymical Artist might have opportunity to open them, and anatomize with much more ease before Nature hath raised them to the last and highest point of their perfection, which is their coagulation, hardning and fixation: for it would save much charge and labour, because there would be no necessity of making the reinundation of metallick Bodies, to seek into the very center of their secondary principles, that vertue which God and Nature have planted in them.

Thus much we thought fitting to say as a preliminary Introduction to the description of each Metal in particular, and of the operations which we will teach upon every one of them, which will be enough to guide and be instead of models to Artists, towards reasoning and working more exactly upon the family of Metals. Metals are divided into three Classes, and that with much reason, partly for the disparity and conformity of their hardness, partly for the resemblance of their preparations. The first Classis contains the noblest Metals, which are Gold and Silver or *Sol and Luna*, ☉ and ☾ by the reason of the great correspondency which is found between those two potent Luminaries and those two noble Metals: for what the Sun and Moon are in Heaven, the same are the Heart and Brain in Animals, and the Gold and Silver amongst Minerals and Metals. The second Classis contains the two inferiour and less noble Metals and the hardest, Copper and Iron, or *Venus and Mars*, ♀ and ♂, by reason of the analogy which is found between those two Planets and those two Metals, and the mutual and reciprocal love also which is between those two celestial Bodies; *Venus* commands over the parts destinated to generation, and all the functions of the Kidnies and Bladder: and *Mars* sends its influences upon the Liver, the *Cystis Fellis* or gall-Bladder, Spleen and adjacent parts of the Ventricle. The third Classis contains the two other less noble Metals, which are

ſofter and ſweeter then the reſt, *viz.* Lead and Tin, or *Saturne and Jupiter*, ♄ and ♃, by reaſon of the reſemblance which is between theſe two Metals, who Command upon the Spleen and Matrix of the *Microcoſm*: But of this we will ſpeak more fully when we treat of each Metal aſunder. It is only requiſite to ſubjoin here in general terms all the operations commonly made upon Metals, to render them uſeful to Phyſick.

The firſt preparation which our Artiſt is bound to take in hand upon the Body of Metals, is *Purification*. The ſecond is their *Calcination*, which is performed five ſeveral wayes; The firſt of which is *Immerſion*, where Menſtruum's or appropriated Diſſolvents are uſed. The ſecond is that which is called *vaporous* or *illinition*, which is performed by vapour or illinition or aſperſion of the Diſſolvent. The third is *Amalgama*, made by the mixture of the Metal with ☿ or Quickſilver. The fourth is *Cementation*, performed by putting the Metals *ſtratu ſuper ſtratum*, or by ſtratification with Saline or ſulphureous ſubſtances, either to correct their defect, or to ſtraighten or compreſs, or to open the Metals. The fifth is *Reverberation*, performed by a flaming fire, until the Metal be reduced to a Calx capable of anſwering the deſign and intention of the Artiſt. The third preparation of Metals is *Extraction*, or to ſay better, the maturation and exaltation of the pureſt part, and of what is moſt concocted and digeſted in the internal ſulphur of Metals, from whence the Tincture proceeds. The fourth is *Volatilization*, which is nothing elſe but a total alteration of the metallick nature, ſo as the Artiſt may be capable to ſubtiliate them in ſuch manner as that they may aſcend or fly, that is to ſay, be turned into a Spirit or Oyle not reducible again afterwards into Metal, which is none of the leaſt operations of Chymiſtry. The fifth is *Sublimation*, by which Metals are meteoriz'd and reduced into vapours, which ſtick as flowers in the receiving Veſſels: ſome are of opinion, that this work is capable to better and maturate or ripen ignoble Metals, and not without ſome ground. The ſixth is the *Salſification* of Metals, which is the reduction of their body into Salt, a thing not of ſo eaſie performance as many Artiſts have imagined, becauſe ſome think to have done enough, if they have diſſolved the Metals with ſome Saline Menſtruum, and after that coagulated and chryſtalliz'd

stalliz'd in a dissoluble substance, which is only to speak properly, the vitriol of the Metals join'd to the saline substance of the Spirit made use of for their dissolution, and returned to a body again with the Calx of the Metal. In the seventh place is *Mercurification*, or the pretended reduction of the solid and compact bodies of Metals in a Quicksilver or flowing Mercury, much like unto the common or vulgar Mercury, which I am also of opinion to be but a mistake introduced amongst Artists, and crept in only by want of true understanding of the meaning of Writers: for they pretend that when antient Authors have said, that the Bodies of metals were to be reduced into Salt, Sulphur and Mercury, this last was to be understood of a flowing Quicksilver: But the meaning of these Philosophers to my best apprehension, when they have spoken of reducing their Bodies into Mercury, was only to bring them again as near as could be to their Universality, that is to say, reducing them to a Spirit coming near the nature of the volatile sulphureous Salts which are the last shelter and covering of the Spirit invisible in it self and of coagulated light: for as the volatile salt of Vegetable seeds, contains in its self the seminal principle and the whole vertue of the plant; so likewise the Mercury or true spirit of metallick bodies contains in it self their sperme, their ingress and Tincture, and by consequence all the vertue which it did possess, and all its power and activity since the first moment of its coagulation, to the last of its fixation: Wherefore it must be the chief scope of an Artist, to endeavour by his study and industrious working to reduce the King of Metals to that height of perfection, whereby to fit it and apply afterwards to the rooting out of the most obstinate diseases: but let him reject far from himself those pretended seekers of flowing Mercury, because besides that the search and curiosity of it is useless and beyond Humane reach: it is besides an occasion of wasting both the precious Time and Estate of those that give up themselves to it, and makes them lose opportunities of discovering several other things useful to them in particular, and next to their Neighbour and Civil Society.

Of

Of Gold and its Chymical preparation.

GOLD is the nobleſt, the moſt ſolid and fix of all Metals; of a yellowiſh colour, compacted, and of an almoſt indiviſible union in its ſubſtance, which ſhews him to be compounded of ſalt, ſulphur and mercury brought to the higheſt degree of digeſtion, and for that reaſon moſt fix and intimately united together. Chymiſts do give unto it the name of *Sol*, *ſunne*, and attribute alſo to it the ſame Character ☉, becauſe it hath, ſay they, a ſympathy and correſpondency, both with the Sun of the great World, and of the little world which is mans Heart, and therefore do they aſcribe unto it the vertue and faculty of curing all faintings and weakneſſes; they believe it finally to be the true and lawful Reſtorer of the Balſamick Faculties and natural heat, and the ſoveraign Remedy againſt Deliquium's and ſwoonings, loſſe of Spirits and waſting of radical moiſture. But there is an abuſe and miſtake in vulgar Pharmacy introduced by the *Arabes*, which do mingle Leaf-gold in their Confections and Cordial powders, as if the digeſtive heat of the ſtomach and the moiſture of imperfect Chyle were capable to alter in any wiſe the ſolidity of this noble Metal; for beſides that no humour analogous to *Aqua Regia* can be found in the Ventricle which might be capable of diſſolving Gold, yet ſuppoſing it might be performed by ſome ill fermentation of ſuperfluous aliments, it could not but cauſe mortal pains, and make ſuch ulcerations and preternatural colliquations, that they would infallibly deſtroy the ſubject wherein they ſhould be, rather then meliorate and reſtore the vital and animal Faculties as it is pretended. But ſome perhaps will object, That though Gold be not diſſolved in the Ventricle, it is not altogether without ſome good uſe, by reaſon of the irradiations and emanations of its vertue which it ſends to the Heart in reſpect of their mutual ſympathy; To which I anſwer, That it will ſuffice for the ſame reaſon to carry it above the body, and thus make an outward application of it more eaſie and in greater quantity then what can be ſwallowed; and ſo would it prove much more beneficial then being

ing inwardly taken in small quantity, and moreover there would be no loss of it; which makes us conclude that unless Gold be prepared and opened in such a manner, as that our digestive heat may be capable to appropriate its vertue unto its self by the help of the volatile sulphureous Salts, which are mingled in the aliments of the body either dry or moist, or unless Art hath already so reduced this metal into Medicine, by the assistance of Salts and Spirits which may be analogous to those of orature and free from corrosiveness, that it may be rendred fit to be conveighed and driven by the Director of our natural Functions into our very last digestions, thereby to correct all the defects it shall meet with, and purifie by the impression of its Cordial and Solar Vertue the whole masse of the venal and arterial blood, otherwise no good is to be hoped or expected from it; but contrariwise some ill effect, being uncapable to produce any other in case it be prepared with corrosive Salts or Spirits: and being not dissolved nor opened, it is unfit to do any good.

They that will chuse well their Gold for Chymical preparations, must take it of the purest and of that which hath received the lesse allay; for to make any difference between the *Indian* Gold and that of *Arabia*, *Hungary*, *Bohemia* or *Germany*, is a very needlesse Nicety, since by the ordinary purifications it may be brought to the highest degree of purity and goodnesse; and those are the following.

First, There is a purification made of Gold, to take away the superficial setling or foulnesse; Secondly, That which is done to take away some portion of one or more imperfect metals, which were mingled either in the Mint or by the Goldsmiths, or finally brought from the Mine. For the first purification wash the Gold in a crude Lye, or water impregnated with Tartar and common Salt, which is called *a Bullitory*, or make it boyl and wash in *aqua fortis* something weak or mixt with phlegm of Allom, Salt-peter or Vitriol, these three Lotions are sufficient for the first intention.

But when some part of imperfect metals is mixed with the Gold, the separation cannot be made but by dividing the metals asunder, which cannot be done but by their dissolution, which is called *Immersive calcination*, or by the destruction of the imperfect metal, as

as when Gold is purified by Lead or Antimony, or cemented with substances capable to corrode and destroy the imperfect metals mixed with the Gold.

As for the dissolution, which is immersive Calcination, it is performed with ij. iij. or iv. p. of Regal water, the distillation whereof we will teach when we shall Discourse of Salts: for the Regal water will only dissolve the Gold, and the other metals remain in the bottom of the Vessel, chiefly if silver be predominant, because the Regal water touches in no way the silver: the dissolution being made, filtrate it, and gently pour it out by decantation, then precipitate with oyle of ♀ *per deliquium*, or spirit of volatile Armoniack Salt, or spirit of Urine, or throwing it in some proportion of quick-silver, which will gather to its self the Gold which was dispersed in the dissolution, or by evaporating the dissolving water: finally, which way soever you reduce the Gold to Calx, there remains no more to be done after then to melt it in a Crucible with a little Borax, and cast it into Ingots, and you shall have purified Gold.

But if you will only put it in the Capel, and drive it with Lead to separate the heterogeneous metals, you must make your Capel with Bean ashes, putting ij. or iij. p. of Lead, which with violence of fire and bellow's must be driven, as we shall more fully deduct when we treat of the purifying of Silver. But because the Capel doth not take away wholly the suspition of some remaining part of silver being yet intimately mixed with the Gold: Artists have not found a better way to purifie it totally then to melt it with Antimony, because the sulphur of that mineral doth absolutely corrode and destroy, not only all imperfect metals which might be mixed with the Gold, but it also destroyes totally the finest silver, be it in never so little a quantity, if the purification be reiterated three times: which being done you may confidently say that the Gold is very pure, and that there can be no finer, and it is thus performed: Take as much Gold as you will, and add thereto v. or vj. parts of crude Antimony, put them in a good Crucible to melt together in a wind-Furnace, and when the matter flowes, throw in about ℥ j. of pure Salt-peter very pure and dry mixt with ℥ j. or iij. of filings of Iron, and when all is well melted and flowing together glowing, and of a colour tending towards

wards Partridge eyes (as they call it) throw the matter in a sharp earthen Vessel, such as is fit to make Regulus (of the figure of an inverted Pyramid) being hot and first anointed with it with a piece of wax down to the bottom, and when it is full with the melted matter, knock gently with a Hammer on the brims of your Vessel until a crust and thick skin covers over the matter, that being a great help to make the Regulus fall to the bottom and separate the feces and scum from the pure part: the matter being cooled, separate the Regulus from the skum, and mix it again a second time with p. ij. of Antimony crude, reduced to powder, and melt as before, and about the end of the melting of the matter throw a little Salt-peter and filings of Iron, to separate the rest of the Regulus from the scum or feces, in the impurity whereof some part of the Gold might remain yet hidden, and this work may be reiterated even to the third time, that no portion of Regulus may remain untoucht, and by consequence the Artist may rest secure that no part of the Gold is left in it. Then reduce your solar Regulus in course powder, and place it in a good Crucible in a wind-Furnace, and give it fire on all sides, above, beneath and in the sides, to drive the Antimony by smoak: you may also add to it the help of bellowes to advance the work and so give it fire, continuing to blow until all the substance of the Antimony be exhaled into vapours, and the Gold remaineth pure and clean in the bottom of the Crucible. They that will not be at so much trouble, may make use of the Regulus of Antimony ready prepared to purifie their Gold: but the first way is the best, because the Regulus is already divested of the greatest part of his external sulphur, which is the fittest for corroding the imperfect metals mixt with the Gold.

It remains we should speak of the third way of purifying Gold, which is Cementation, being nothing else but putting the Gold beaten into thin plates stratified in a Crucible, or unglazed earthen pot of a convenient bigness with common or Regal Cement, and the plates thus well fitted, giving a circular fire by degrees the space of three or four hours, then encreasing it during the space of six hours more, in such a manner as the Pot or Crucible may become glowing red at the end of the operation of the fire. And thus shall you find the plates of Gold purged of all

that imperfect metal which might have been lurking in them, the matter of the Cement having destroyed, burned and calcined the metal; then grind the masse found in the Crucible, and wash the plates, to purifie them afterwards by melting with a little of Salt-peter and Borax, or with corrosive Sublimate.

To make the vulgar or common Cement.

℞ of Brick dust ℥ iiij. dryed salt ℥ ij. and of dryed and pure Salt-peter ℈ ij, and as much Verdegrease, reduch all to powder each by its self, and mix together to make the vulgar Cementation. But note, that you must ever begin by the powder of Cement to lay the first bed of your stratification, then lay over it a plate of the metal, and thus proceed by alternative beds, until the pot, box or Crucible be full, and order it so that the uppermost lay be also Cement; then cover the Vessel with a very close and exactly well fitted Cover, and lute it with a good Lute not subject to crack, and well dryed before you put it in the fire.

To make the Regal Cement, unto which only Gold doth resist.

℞ ℥ iiij. of Brick dust, Armoniack Gem, and common salt dryed, *ana* ℥ j. mix them together being reduced to powder and make a past thereof with Urine, and with this make your Cementation, stratifying it with the plates of Metal. There are yet several kinds of Cements more or lesse corroding the Artists intention; there are also some that are only straightening and fixative, but as they do not belong to our present purpose, nor concern any wayes the preparation of Gold for Physick, we think it unnecessary to mention them here, leaving to the Curiosity of those that will enquire after, to search for them in such Authors as have purposely treated of Metallurgy.

Of

Of the Calciuation of Gold whereby to open it.

IT is not enough for an Artist to have purified his Gold, and severed from it all kind of heterogeneous substance; For as Gold is a solid, compact, close and fixed Body, it must be open, that his endeavours in dissolving the same to extract the substance he seeks for, may not be frustrated; and this he cannot attain but by Amalgamatory, Cementatory and dissolutive Calcination, all which do prepare and reduce to powder and Calx, which afterwards may be put to a Reverberatory calcination; we shall treat of each as briefly as may be that the Artist may be instructed without confusion.

That Calcination which is performed by Amalgamation of the Gold with Mercury or quick silver is free from suspition of any violent Corrosion, which may impart to the Gold any kind of hidden corrosiveneese, as it is generally feared all salts and corrosive spirits will do: though we must confess however, that neither spirits nor salts can be capable to communicate any ill quality to Gold, neither divest him of the character of being a metallick body, unless they be extraordinary salts and spirits, and to the knowledge of whom those Authors which have left us any thing by writing have not attained, or in case they have said any thing of it, it hath been in so obscure and ænigmatical terms as it is plain to be seen, that either they would not be understood by others, or could not understand themselves: for there is not one Artist but knows that water and fire can purge the calx of Gold from those impressions of corrosive salts and spirits, either by Lotion or Reverberation: wherefore it must remove all occasion of fear from such as would entertain any scruple in this particular. For all what in past-time Artists have done, or do at the present, is to no other end and design then to open the body of Gold, and render it capable of being dissolved and extracted without any Corrosive. We will deliver in the following Discourse, the surest way and method which practice and study hath brought to our knowledge, leaving the rest to the disquisition of such as will make a further progress in this Work.

Amalgamation of Gold and Mercury.

BEat in very thin plates Gold three times refined by Antimony, and being cut very ſmall with ſheeres or ſciſſars, put ſome part of the Gold in a ſmall Crucible, and heat it red hot, and at the ſame time put in another Crucible ℥ vj. of crude Mercury, and place it alſo to the fire until it begins to ſmoak, then pour it upon the Gold thus red, and ſtir them both nimbly together with a ſmall ſtick of wood, and when all is reduced to a convenient ſmoothneſs, throw it in a Diſh half full of water; this done throw away the firſt water and pour new freſh water upon the Amalgam. and ſtir and waſh it therein to ſeparate and cleanſe away all the blackneſs and fuliginoſity thereof, and thus proceed until the water comes off from it as clean as it was poured on; this done, put this Amalgama which is tractable and unctuous in a ſmall Retort, to the neck whereof fit a Recipient with water; place this Retort between four bricks, & give it an open fire by degrees, until all the Mercury be come over the Helm into the Recipient, and the Gold remains pure and open in the bottom of the Retort; but that cannot be done neither at the firſt nor ſecond time; contrariwiſe, the amalgamation and diſtillation muſt be reiterated ſucceſſively at leaſt xx. or xxx. times, even until the Gold remains open, ſpongious, and capable of being reduced to powder of it ſelf. Now as that requires a toyſome and tedious operation; Artiſts have found a way to ſeparate and diſcontinue in a leſs time and with much more ſpeed the parts of Gold after amalgamation, which is performed by cementing it with common ſalt deſiccated, or powder of Brimſtone; for the Amalgam being grounded with double its weight of ſalt and brimſtone, it diſcontinues or ſeparates its parts into particles or atomes ſo ſmall, that it enables the fire afterwards joined to thoſe matters to calcine it with much more eaſe, and thus it is much ſooner reduced into ſubtil powder and ſo well opened, that it is capable afterwards of being reverberated, and brought by the ſole action of fire to a fitting ſtate of Rarity, and requiſite ſpungeouſneſs, which is thus performed.

The

The Calcinatory cementation of Gold.

THough we have spoken above of the cementation of Gold, our Artist shall remember that it was only to teach how to try and purifie the same: but what we are now about to teach, is to the end of Calcining and opening its Body as we have already said; the Artist then shall thus proceed therein. Let him take the Amalgam after it is well washt and dried with a clean linnen cloth, so that all moisture be taken off, and press and wring it as much as he can through a piece of chamoy skin, to separate from it the superfluous Mercury, then let him weigh the remainder, and grind it on a Porphyry stone with double its weight of *sulphurvivum* or quick-brimstone powdered, and that until the Brimstone and Amalgam be so exactly united and commixed that you may distinguish neither of the substances, then put this powder in a Crucible of an indifferent bigness, that none of the Gold may be lost by the cracking and working of the Brimstone; cover also exactly the Crucible with a cover having a hole in the top, of the bigness of a writing Quil; then lute the cover of the Crucible and give it a circular fire by degrees until it begins to grow red hot, and the Brimstone taking fire evaporate by the hole in the Cover; this done, which you shall know by the cessation of the flame, draw the Crucible from the fire and open it, and you shall find the Gold swelled up, and so discontinued and dis-jointed in its parts, that it seems to be a Spunge: this grind afterwards with three times its weight of common Salt well deficcated, or stratifie it only in a Crucible, to which put a cover without hole, and having luted it, put it in a circulatory fire, which encrease by degrees until the Crucible becomes red, then cease the fire, and the Crucible being grown cold, take the matter and grind it, or work on a Marble morter to dissolve the salt, and thus shall you have your Gold in very subtil powder or Calx. Then reiterate this Amalgamation and both Cementations with Brimstone and Salt, each of them seven times, which are in all 21 operations, and so shall you have a powder or Calx of Gold capable of being exposed to Reverberation, as we shall now declare.

The

The Reverberation of Gold.

TAke the prepared calx of Gold as it is taught above, and put it upon a flat Tile of some stone of sufficient hardness to endure well the fire, cover the Gold with a Muffel, which is an Instrument us'd by Goldsmiths to perfect the melting of their work when loaden with enamel; cover the Muffel with good, dry and well season'd Charcoal all about except towards the forepart, where it will suffice to have only a small Iron-plate, which may be removed at will that the Gold may be stirred sometimes with a small clean and well polished Iron rod, then kindle the fire and continue it until the calx of Gold be very much subtilitated and open, and exalted to a red purple colour: then may you say confidently you have a true calx of Gold which is in a fit capacity and condition to be extracted and dissolved, when you have compassed the knowledge of those sweet and gentle Menstruum's (capable to effect it) who may have some analogy and sympathy with our natural spirits and radical moisture: for until this true dissolution and radical extraction of Gold be thus attained unto, I give no heed or belief to the pretended Remedies which are prepared for Gold by any other way, and commonly are call'd *potable Gold*, *Tincture* &c. For I could not yet have the fortune to see any of the liquor or substance which was not again reducible to a metallick Body, which condition doth absolutely contradict the sense and opinion of ancient Writers concerning this matter; not that I deny it absolutely possible to dissolve and extract the Tincture of Gold: but I rather chuse to make use of other strengthening and cordial Remedies, until by my own experience, or the communication of some other more fortunate then my self and more knowing, either by his own study or the manuduction of some friend, I may be perswaded of the truth of this matter. But because there are some very noble and curious preparations for the dissolution, precipitation and extraction of Gold, which are capable to bring our Artist to much knowledge, and raise his thoughts to the meditation and disquisition of some better matters, and that these preparations are part of Remedies not to be despised and undervalued,

valued; I have thought it necessary to deliver here the process thereof, as also of a Solar Sublimation which is admired by some, and pretended to be a very good Tincture.

To prepare the Crocus and Tincture of Gold.

TAke ℥ 9. of Gold refined by Antimony and beat it into very thin plates or leaves, then put it in a Cucurbite with ℥ x. of very good well refined Salt-peter, ℥ viij. Roch Allom and ℥ v. of very pure common salt, pour upon this ℥ iiij. or v. of distilled Rain-water, then put the Cucurbite in sand and give it a fire to cause the whole to boyl, and thus continue till all the Gold be dissolved, which will be perceived in the colour of the water remaining tinged with a very fair yellow, and when no more dissoluble substance shall appear in the bottom of the Vessel, then continue the fire something more slowly and evaporate the water to a dry bottom, and in it will remain a high coloured Masse containing in it self the dissolved Gold, and diffused before through the whole substance of those salts. Take half of this Masse, reduce it to powder which pour in a Matrass, and put upon alkoholizate spirit of Wine three fingers high, put a Blindhead upon the Vessel containing your matter, and place in sand, giving it a fire of digestion and extraction, and in a short time the Spirit will be ting'd with a very pleasant yellow colour; this Spirit having laid in digestion the space of three dayes, you must filtrate it and pour on fresh at the same height, and continue the digestion of it, till it hath attained the same colour of the first spirit already drawn off, and so proceed in this digestion and extraction until the third or fourth time, or rather until the Spirit takes no more Tincture; then join all these Tinctures together, and being filtrated put them in a very clean and dry Cucurbite, which place in *B. M.* to draw off with a slow heat by distillation the three parts of the Spirit, and you shall have in the bottom a yellow Tincture containing the best part of the Gold dissolved and extracted in and by the salts, so open'and united to this Spirit that it forsakes it in no wise, unless it be to coagulate it self in the form of a yellowish salt when the spirit is too much loaded with it; for this

this coagulation doth not hinder it from having ſtill its colour, and a bitter harſhneſs, which ſhews the Gold to have diveſted its Body ſo far as to become an analogous ſubſtance to its vitriolick principle, whereof it hath the taſt and reliſh. I do not deny but that this Gold may be in a manner reduced to a body again; but I deny that it may be altogether brought to it: and that ſince the moſt pure ſpirit of Wine hath been capable to extract it from the ſalts that had diſſolved it by the only help of Rain-water, part of this Gold muſt of neceſſity be ſo altered, as to have been brought ſome part of the way towards its firſt matter. Wherefore I do not altogether reject the inward uſe of this Tincture of Gold, though it hath not yet attained all the perfection which the true Tincture or true potable Gold ought to have: for as I am convinc'd by the experience of many of my Friends, and my own in particular, I cannot contradict it, ſince we make uſe every day with very good ſucceſs of the diſſolutions and ſalts of other metals, though yet reducible to a metallick Body, as it appears in the Remedies taken from *Mars* and *Saturn*, which have alſo in them this ſweet vitriolick and Pontick Salt according to their reſpective propriety and Nature, as Gold alſo hath its bitterneſs; And nevertheleſs, the taſte of theſe preparations which are made upon *Mars* and *Saturn*, are commonly taken by us for concluding Tokens of their vertue and of thoſe good effects we hope from them, which makes me not to be averſe to recommend the uſe of this Tincture, provided it be adminiſtred in a convenient time in a proper Menſtruum, and the Doſis be exactly obſerved according to age, ſtrength and the exigency of the Diſeaſe; The Doſis muſt be from *gutt. ß.* to iij. or iv. in Wine, Broth, Scorzonera Root-water, Buck-horn or Balm-water. The Diſeaſes for which it is moſt proper, are all thoſe that have ſome virulent quality or ſome malignancy; all thoſe wherein ſtrength or ſpirits does fail or is impaired; the Patient muſt be covered after he hath taken it, and ſo expect the moſt calmly and patiently he can the effects which this Remedy will produce, which moſt commonly happen by Sweat, ſometimes alſo by Urines and Stools; for as it naturally doth ſtrengthen all the natural Functions, ſo doth it drive away all the evil and heterogeneous matter which it meets with in the body, by thoſe Emunctories which Nature hath

hath prepared for that end, when the impurities are too grosse and cannot penetrate from the Center to the circumference by sensible or insensible transpiration.

To prepare the Crocus of Gold.

TAke the remainder of the Masse left after the evaporation of the dissolution of the Gold with salts above mentioned, and dissolve it in a slow heat, with as much distilled Rain-water as will be necessary to dissolve it; filtrate this dissolution through paper, and precipitate it with a sufficient quantity of oyle of ♀ *per deliquium*, poured upon it drop by drop, unless the Gold be precipitated to the bottom, then let it settle, and separate by decantation the liquor swimming above it, and edulcorate the solar Crocus with distilled Rain-water, then dry it gently and slowly. You must also precipitate again the liquor separated from above the Crocus with spirit of Urine, that in case there should remain yet any portion of Gold, it may be drawn off: after this, edulcorate what hath been precipitated and dry it, to join to the first Crocus, and reverberate in a Crucible with a moderate heat the space of about a quarter of an houre, and so shall you have a solar Crocus very open, and of a fair purple Violet colour, which is an excellent Diaphoretick and a Cordial not to be despised. The Dosis must be from *gr.* ℈. to v. or vj. in some Conserve or Cordial gelly. There may also a very excellent Diaphoretick and comfortative Powder be made out of it.

Solar Diaphoretick, Cordial Powder.

TAke of solar Crocus ʒ j. of very good Saffron ℈ ij. Bezoar mineral. ℈ iiij. Vipers flesh ʒ iij. dissoluble Magistery of Pearls and Coral *ana* ʒ ij. Ambergreece allayed with a little oyl of Cinnamon and of the outward rind of Lemon, and ground with ℥ j. *sug.* ℈ j. of oriental Musk dissolved with spirit of Roses *gr.* x. grind each of these substances and triturate them severally; then mingle together and keep in a silver Box, shutting it very close with

a screw, or in a Glass Viol well stopt, to use it when occasion doth require, as a soveraign high Cordial and wonderful Sudorifick. The Dosis of which is from vj. *gr.* to xxiiij. in Conserves, gelleys, Cordial waters, Wine, or finally Broth, as it will suit best with the nature of the Disease, and agree with the constitution of the Patient. It is an unparallel'd Remedy in all pestilential maladies, malignant Feavers, Measels, Small-pox; and moreover, it is generally good where there is any necessity or occasion of repairing strength.

To make the sublimation of Sol.

TO attain to the perfection of this work, take good Regal water, such as we shall teach hereunder how to make when we shall treat of Salt-peter, ℥iij. and being put in a Matrass of a sufficient capacity, dissolve in this Menstruum ℥ ß. of laminated or Leaf-gold very thin, refined by Antimony and cut very small, then place it in ashes to make the dissolution perfect, which done, pour your dissolution in a small Retort and place it in sand, fitting to it a Recipient, and draw off softly about the fifth part of the Menstruum again, or a little more, then cease the fire, and pour upon the matter remaining in the bottom of your Retort ℥iij. of new Regal water, and go on in drawing it off by distillation as before, and thus proceed with new water to the fourth time: but at the fourth time let the bottom of your Retort be somewhat near the bottom of the Vessel wherein the sand is held, that there be no more then a finger thick of sand interposed, wherein to give it a more intense fire towards the latter end of your operation, that some part of the Sol may be sublimated with the *Armoniack* salt of the Regal water: for all the liquid Menstruum being ascended and past through the neck of the Retort, the violence of the fire dexterously given by the Artist towards the end doth raise the salts of the Regal water which the Gold had kept, and reincorporated to its self in the bottom of the Retort, which sublimate themselves towards the neck of the same, and carry along with them that portion of Gold that was most open, which some think to be the sulphur or soul of the Gold; though in this mistaken,

mistaken, because some may be yet brought again to a metallick Body, though not all: wherefore some vertue is also to be expected from these Chrystals or Flowers as red as Saffron, which are found in the upper part of the Retort and in its neck, in case the Artist hath well observed the requisite circumstances, in this most curious operation and pleasant to behold. Now the *Armoniack* salt which sublimates and elevates its self in this operation, is of a volatile sulphureous nature, and consequently carries up along with its self the most subtil parts of the sulphur of Gold, which the high and intense colour of the sublimation testifies, and the diminished weight of the Gold remaining in the bottom. Take then all this sublimated matter and put it in a small Matrass, and pour upon an inch high of Tartarizated spirit of Wine, which will immediatly be tinged with a very fair yellow colour, then put this Matrass stopt with a fitting Blindhead in a vaporous Balneo to digest, that the purest part of the sublimated matter may be extracted, which may be performed in the space of three natural dayes, then filtrate this Tincture and keep it for use. As for the Body remaining in the bottom of the Matrass or the Filter, it must be joined again with the Gold left in the Retort after sublimation, and melted together in a Crucible with a little Borax or salt ☿, then by the weight of it you may judge of the decrease of the Gold, which may also be kept for other uses by reason of its purity. As for this Tincture it may very lawfully be used in Physick, having nothing in it self that may render it unacceptable: for if you narrowly consider what ascended in the sublimation, you shall know it to be only the purest part of the *Armoniack* salt, which was one of the Ingredients of the Regal water, being of it self a volatile sulphureous Salt friendly to Nature, Diuretical, Disopilative and Sudorifick or Diophoretical; and moreover, enobled and animated, and loaden with the solar Sulphur, which it hath carried up along with it self. Moreover, the Menstruum used in the dissolution and extraction is a true preservative Balsom, and the purest of all Spirits, powerful enough to stir the action of the other two substances, and render the penetrative into our very last digestions, to correct the defects and viciousness thereof, and drive away all impure superfluities from the habit of the body, which for the most part are the occasional causes of our Diseases;

wherefore it may be administred from j. drop to vj. in all malignant diseases, and chiefly in those that require speedy help by insensible transpiration, Sweats or Urines; it is a very special Remedy in all Leprosies, venereous Diseases, Scorbute & all its dependences: and if you will use it for a preventive Remedy, when you find the body heavy and untoward, itching by fits, full of repletion, and troubled with spontaneous wearinesse, you may take a Dosis thereof answerable to the age and yeares of the Patient, to the sex and strength of the Person, either in Broth, white Wine, or some Cordial water; then being well covered expect patiently the sweating fit, which will not miss coming, or if you cannot conveniently expect, endure this Remedy; it will not fail to expel superfluous humours by Urine, for it is only this superfluity and abundance of serosities which filleth up the veines and Arteries, causing a pricking in the ends of the fingers and exciting head-ach, and grief in the other lower parts of the body, irritating and stretching beyond measure the membranous and Nervous parts thereof.

Of Silver and its Chymical Preparation.

SILVER is the second of Metals in Rank and Dignity, less fix then Gold, because its principal Vitriol (if I may so say) is not digested and united by a perfect union and fixation with its sulphur, which causes it to yield more easily and quickly then Gold in nitrous, vitriolick and aluminous Menstruums, by reason of this indigest Vitriol remaining in it. Chymists do call it *Lune* or *Braine*, because it hath some sympathy with the Celestial *Moon* or *Luna*, and with the brain in Man; for which cause the Remedies extracted from the same, are dedicated to strengthen the head and animal Spirits: so that it is said to be a Specifick Remedy for the cure of the chief affections and diseases of the Head; such as are Apoplexy, Epilepsey, Maniack-passion, and other distempers whose original and spring is in the Brain.

The choice of Silver for Chymical operations is not very important, because very little is found with an original purity, which renders it the more beholding to Chymistry, without which it cannot

not even be separated from its impurities contracted in the matrix of the Earth, or accidentally by allay; for it is not sufficiently depurated either in the hands of Goldsmiths or Mint-masters: for as to cleanse it from its outward soil and impurities, it is easily performed by boiling the same in water impregnated with Tartar and common Salt; after it hath been neal'd or made glowing red in the fire, and thence cast into Urine and then Water, thus shall it be very pure in what concerns the outside: but if you will further purifie it from its alloy, or allowance in the Mint, you must make use of dissolution which is the immersive Calcination, and melt it by drying in a Cupel with Lead purposely made for this operation of purifying Silver, and that before you expose it to other Calcinations which must be previous to the preparations of this Metal, that it may thereby be made fitting for dissolution and extraction of its Tincture, the three principal whereof are, *immersive Calcination, Amalgation, and Cementation*; for very seldom reverberating Calcination is made use of, because Silver having less fixity then Gold, it needs not consequently any long and powerful action of the fire to become sufficiently opened. As for the first separation of such impurities and Metals as are mixt in Silver, you must dissolve it in three or four parts of *aqua fortis*, made with Vitriol and Salt-peter as we shall teach hereafter; then precipitate it in a Calx or powder with salt, water, *viz.* water in which you have dissolved common salt, as much as the water can bear, which is also called amongst the Artists *Pontick* or *Marine water*; or put small Copper plates in the said dissolution, and weaken the *aqua fortis* with common water, and the Copper will draw and gather to it self all the Silver in form of a white powder; but which way soever you make this precipitation of Silver, you must afterwards by several reiterated Lotions edulcorate the powder or calx of Silver with common water, and then dry the same. But because this Calx is not yet free from some mixture, it is necessary to Cupell it, and drive it with three or four times as much of Lead upon the said Cupel, being covered with a piece of wood dry, and adapted to the proportion of the hollow, with good coals fitted about, and blown with a great quickness and violence of fire, till the Lead vanishing hath carried away in its vapouring all the impurities and heterogeneous metallick mixture of

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the Silver, or that the Lead be all drunk up by the Cupel, or converted on the top of it in a skum or excrement of calcinated Lead, which is commonly called *Litharg*, more or less red and high in colour, according as it hath more or less participated of the heat of the fire. The most remarkable thing in this operation is, that the Silver being once refined and purified, it growes hard in the midst of the most violent fire, though a little before it did run like water, whilst the Lead was yet Master over it, and some mixture of impurity did remain.

The Silver thus left upon the Cupel is very pure, and cannot be suspected to be guilty of any bad mixture; this is that which Artists call *highly Refined*, and *silver of Cupel* : Take then of this q. s. and having made it into very thin plates or small filings, put in a Matrass, and pour it upon three times its weight of good *aq. fortis*, or what would yet be better, of good spirit of Niter, put it in sand or ashes to digest and accelerate the dissolution, and being ended, decant it in a small Cucurbite, to separate what impurities might remain in the bottom of the Matrass; after this draw off half of the Menstruum again in ashes and let the Vessel cool, and the next morning shall you find your Silver reduced into Crystals, which according to some are called *the vitriol of Silver*; these dry gently and keep in a well stopt viol, to administer to such as are sick with some Cephalick disease, to purge them: The Dosis must be from ij. *gr.* to x. in Broth, or some opening Cephalick Decoction; they purge very gently, and do powerfully disburthen the Head of all bad and noxious humours.

After this precipitate the liquor which swam above the Chrystals with salt water, to have the calx of *Lune* or Silver, which edulcorate and dry, to make therewith the following preparations: and this is that which Writers call *calcined Silver*, or *calx of Lune*. We will give three Examples of the Extraction of Tincture of Silver, which is called *potable Lune* or *Silver*, to make the Artist the better to apprehend the manner of working, because the Menstruum's, as also the manner of the work, are differing one from the other.

The

The first preparation of the Tincture of Lune.

TO attain to the perfection of this Tincture, there must first a Menstruum be prepared for its Extraction, which is to be made in this following manner. Take j. p. of very pure *Armoniack* salt, and ij. p. of *Minium*, which is nothing else but calcinated Lead, and turn'd to redness by Reverberation; having mixt these two substances together put them in a Retort in sand, and having fitted to it and luted exactly a Recipient, give it fire by degrees, which continue until the drops and vapours be over: But take care that the neck of your Retort be above an inch Diameter in breadth, that in case any sublimation happens, the matter may have a free passage into the Recipient, and not stop the neck of the Retort to the danger of its breaking: the Vessel being cooled, pour the distilled liquor into a Cucurbite, and rectifie this spirit in ashes, to reduce it to a greater purity; After this, take some part of the calx of Lune made with spirit of Niter precipitated with salt-water, edulcorated and dryed; put it in a circulatory or digesting Vessel, pouring upon it vj. p. of the above said Spirit, and digest it in a vaporous Balneo with a slow heat, and you shall see in a short time this Spirit to become tinged with a fair blew, which being somewhat high in colour, decant it, and put new in the place, and so continue until the Menstruum takes no more colour, then put all the Tinctures together and filtrate them, and draw off the said Menstruum again to a dry bottom; and you shall have in the bottom of the Vessel a powder of the smell of Urine, upon which pour distilled Rain water three fingers high, and draw it off again by distillation, and thus proceed with new distilled Rain water, until the Lunar powder hath totally lost her ill smell, and the ill-savouring taste of Urine which the *Armoniack* salt had raised in it; and the powder being thus prepared and well dryed, put it in a circulatory Vessel, and pour upon it very well alkoholizate spirit of Wine three inches high; stop the Vessel very exactly and place in it a vaporous Balneo to extract and circulate, until it hath got a very high blew colour; then cease

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the fire, filtrate the Tincture, and draw off half of the Menstruum in Balneo, keeping the remainder very choicely: for it is the true essence of Silver, very excellent against all affections of the Brain, particularly against madness or maniacal passion, Apoplexy, Epilepsey and Palsie, given from j. drop to vj. vij. or viij. in convenient Liquors; as are the spirit of black Cherries, or of Elder-berries.

The second preparation of the Tincture of Lune.

THE process of the Tincture is much more philosophical then the foregoing, which must oblige the Artist to stick close to his work and proceed in it judiciously; and as we have spoken above of the Cementatory Calcination of Silver, so have we deferred to teach here the best method of that Operation, as we will keep the Amalgamatory for the subsequent.

℞ Silver of Cupel, and having beaten it into very thin plates, put them in a Crucible or Cementing Box, stratified with very dry vitriolated Tartar, prepared with very pure salt of Tartars and well rectified oyle of Vitriol, beginning your stratification by the Salt, and ending so the last bed or lay; lute the Crucible or Box, and let the Lute dry, then place the Vessel in a circular fire, begun slowly, and thus continued during the space of four hours, which being over, let the Crucible grow cold, then open it to take the Silver which you shall find calcinated and brickle, of a Glass colour; reduce it to powder, and if any remains which is not yet sufficiently calcin'd, reiterate the Cementation with new, and join all together. Put this green powder in a Cucurbite, pouring upon it good distilled vinegar the height of three fingers; then place the Vessel in ashes to a moderate heat, and so leave it viij. or x. dayes in this tenor of heat continually, that it may dissolve and extract the Tincture of Silver; and when the spirit of Vinegar shall be tinged with a fine Emerald green, separate it and pour on new, until this Spirit takes no more of the green colour; then put all the Tinctures together and filtrate them. You shall find in the bottom of the Vessel a yellowish sediment, which is the remainder of the Silver, and its earth divested of sulphur.

But

Put all the Extractions filtrated in a Cucurbite in *B. M.* and draw off the Menstruum thereof by Distillation in a graduate heat till it comes to a pretty thick consistency of Syrup, upon which pour spirit of Wine twice rectified upon salt of Tartar four fingers high; cover the Cucurbite with its Blindhead, and put the matters to circulate in a vaporous Balneo in saw-dust, regulating the heat thereof as near as it is possible to the proportion of the humane Body, or mans stomach, during the space of forty natural dayes, which is the Philosophical Month, then take out the Vessel, and if you find any defecation made in the bottom, decant or separate the impurity by inclination, or filtrate the spirit of Wine loaden and impregnated with the centrical sulphur of *Lune*, which is of a very pleasant green colour; put the filtration in a Cucurbite in Balneo, and draw off back again the two thirds or three parts of the spirit; and you shall have the true Elixir of *Lune* in a green liquor, which keep in a well stopt Viol for use. The vertues of it are alike, or rather more excellent and more in number then those of the foregoing essence: for it is a Rare Remedy to evacuate insensibly dropsical swellings: The Dosis is from j. drop to viij. in Broth, Cephalick and operative Waters, or even in white Wine.

The third preparation of Lunar Tincture.

WEE have received in this third Tincture to give a place to the description of the Amalgamatory calcination of Silver, for avoiding of unnecessary repetitions, and that also the Artist may better conceive under one Tenor the operation of this last processe upon *Lune*. Take then very fine Silver in leaves, and heat it moderately in a Crucible on burning or kindled coals, having at the same time as much weight as the Silver is of running Mercury in another Crucible, which heat also until it begins to smoak, then join both these together, and stir them well until they be reduced to a well incorporated Amalgame and something unctuous; to which add a fourth part of its weight of well desiccated common salt, and having put it in the Crucible again, give it a gradual circulatory fire, encreasing it by little and little until

all the Mercury be vapoured away; then the Crucible being cold, grind the matter remaining in it on a Marble ſtone, and waſh it with diſtilled Rain-water to ſeparate the ſaltneſs thereof, and dry the calx remaining after Lotion; weigh and put it in a Matraſs, and pour on it three times its weight of ſpirit of Niter, digeſting them together to a full diſſolution, then pour this liquor into a ſmall Cucurbite, and draw off the Menſtruum again in aſhes to a dry bottom: then pour on it diſtilled Rain-water, and draw it off again by diſtillation, and thus reiterate with new water, until the calx of *Lune* hath altogether loſt that acrimony which it had contracted by its Diſſolvent: that done, and the calx being very dry, put it in a Matraſs, and pour upon it ſpirit of ♀. *Veneris* or Copper four fingers high, and put it to digeſt and extract in aſhes in a ſlow heat; and note, that your Matraſs muſt be ſtopt with a Blindhead, and well luted by reaſon of the nimbleneſs and ſubtility of the Spirit; let it thus remain in digeſtion during the ſpace of 15 dayes without diſcontinuing the heat, then filtrate the Tincture which will be blew; and go on in this digeſtion and extraction until the Menſtruum takes no more of the colour, and all the Tinctures being drawn and filtrated, put them in *B.M.* in a Cucurbite, to draw off again the Menſtruum to the conſiſtency of a thick Syrup, upon which pour of the ſpirit of Wine acuated with the ſixteenth part of its weight of volatile ſalt of Urine, and put a Blindhead upon your Cucurbite, and having luted it very exactly place it in a vaporous Bath, & give it a very ſlow and moderate heat during the ſpace of three weeks; and the ſpirit will take a very pleaſant blew colour, by the extraction it makes of the centrinal ſulphur of *Lune*; this done, filtrate the Tincture, in caſe any impurity hath gathered to a head, then draw off again the two thirds of the Menſtruum in *B.M.* in a very gentle heat, and there will remain a true Antiepileptical Eſſence, and the true Specifick againſt all maladies of the Brain, by us already related: The Doſis muſt be from j. drop to viij. and x. in the Flower of Lime-tree-water, or an Emulſion made with the ſame water, and Piony ſeeds or ſome other Vehicle appropriated to the Diſeaſe, and taſte of the Patient.

Of

Of Iron, and its Chymical Preparation.

IRON is one of the two Metals of the second Classis, which is that of the less noble and most hard of metals. It is compounded of a Mercury and Sulphur, the crudest and least fusible of all; or again, if you will, Iron is compounded of a Mercury, Sulphur and Salt, which are mixt with many terrestrial and crude parts; in a word, no metal abounds more in Vitriol then Iron or *Mars* doth, so named by reason of the analogy it hath with that Planet, as we already have said above; Iron or *Mars* is one of the Metals which supplies with more Remedies the shop of our Chymical Artist, and one of those that produces the most effects and most pathetical. We will deliver here the method of preparing the most useful for the health of poor Patients, and the most necessary for the instruction of Artists: such as are first the Gradatory Perfectibility (if I may so speak) which purifies Iron of all its impurities, and changes it into that substance we call Steel, which to speak properly, is nothing else but a well compacted and close well depurated Iron. Secondly, we will calcine it to prepare therewith the *Crocus Martis* both astringent and aperitive. Thirdly, We will dissolve it to make thereof Vitriol, Syrup and Salt. Fourthly, We will make the extraction thereof, which shall afford us the Astringent and aperitive Tincture. And in the fift and last place, we will deliver the manner of preparing the Chrystals of *Mars*, impregnated with the internal soul of Steel, which shall appear by the red colour of its sulphur, whereof these Chrystals do participate.

How Iron ought to be purg'd, and made closer, to be turned into Steel.

TAke barres or rods of Iron Hammered and reduced to the bigneſſe of the middle finger, and ſtratifie them in a fitting Veſſel with a courſe powder made with 1. b. of Beech or Willow coals, and ij. p. of Oxehorn ſcrap'd, the joints of the cover of the Veſſel being well luted, and the Veſſel put in a wind-Furnace made for the purpoſe, wherein you ſhall give a circular fire with good coals the ſpace of five or ſix hours, and all being cooled, take off your Iron which you ſhall find purer, cloſer and more compacted, the volatile ſalt and oylineſſe of the Horn having penetrated the barres of Iron, and very much corrected and ſweetened it: inſomuch as it is leſſe porous and earthy; it is alſo more ductile and malleable before the water be given unto it, and much harder, and fit to cut after it has received the water; but as it doth not conduce to our preſent purpoſe, it will ſuffice us to ſay, that ſince Steel is puter and more refined then plain Iron, that it is conſequently Steel muſt be taken by our Artiſt to ſerve his Chymical Operations therewith. They that will uſe Filings, let them take of thoſe which are found ready to hand at the Needle-makers, in caſe they be in a place where they can conveniently get it, otherwiſe let them take of the pureſt and beſt Steel they ſhall meet with, and File it into very ſmall duſt. We have brought here this operation to no other end then to ſhew our Artiſt, that the volatile Salts ever exalt and advance to a better quality the ſubjects on which they are employed, that he may the more entertain a due eſteem of them, and repoſe in them his chief truſt and confidence rather then in any other Remedies.

To

To prepare the astringent Crocus Martis.

WEE will deliver two wayes of preparing this *Crocus*, the one by Reverberation for the inward parts; and the other by dissolution for outward applications. For the first, Take equal parts of Filings of Steel and common Salt, and grind them on a Marble stone together until they be well mingled and incorporated, then spread this matter on a Tile to dry, having some edge in the sides to hinder the matter falling, and place it in a Reverberatory Furnace, and give it a flaming fire which may gently touch, and as it were only lick over the matter during the space of xxx. houres: which being over, wash the so reverberated matter with distilled Rain-water and dry it, to put it a second time to the Reverberatory, that it may be more subtilitated and open, until the Filing or Steel dust be changed into a high and red astringent powder, which is that Chymists do call *Crocus* or *Saffron of Mars*, having given this name to such preparations of Metals and Minerals that are reduced into a red powder, by Distillation or Reverberation. This *Crocus* being well opened by the action of fire, grind it on a Porphyry stone with water of Plantain juice or Ladies mantle water, until it be reduced to an Alkohol, and then put it in smal Trochisks on paper to dry cleanly, and so keep for use. This *Crocus Martis* is inwardly used where there is need of an astringent desiccative Remedy: as in Dysentery, Lientery, heat of Urine, Gonorrhæa and spitting of blood; The Dosis must be from iiij. *gr.* to ʒ ſ. in Conserve of Roses in Bolus or preserved Comfrey Root or Decoction of Plantain, Golden-Rod, or Ladies-mantle, a little of syrup of dryed Roses, or a little of that of Berberries.

As for the second kind of *Crocus* which is astringent, and to be employed to outward uses, it is made with any kind of acid or corrosive Liquor, as the common *aqua fortis*, spirit of Nitre, Salt, Vitriol, Allom and Armoniack salt; we will only take for our model here *aqua fortis* made with equal parts of Allom and Vitriol, in which the Filings of Steel must be dissolved, of which take ʒ iiij. and pour it by ʒ ſ. at once in ℔ j. of this *aqua fortis*:

fortis: for if the Menſtruum was poured upon the Filings, there would ſuch an ebullition be made, and ſo ſudden a calefaction of the matter and Veſſel, that either the one would be waſted, or the other break; and if alſo too much Filings were put at once in the Menſtruum, it would ſend up ſudden and noxious vapours, which would cauſe a ſuffocation of breaſt, or ſtopping of breath to the Artiſt; wherefore the Menſtruum muſt be put into a Cucurbite ſomewhat high that nothing may be loſt by ebullition, which it is altogether impoſſible to hinder or prevent by any other means, then pouring a little of Filings at once; ℥ iiij. of Filings being all ſpent and put in by the Artiſt, if the Menſtruum be not altogether ſpent and drunk up, he may put as much Filings more as it can bear and he thinks fitting; for it muſt be made ſo thick as that the Menſtruum and Filings make but one paſt of an indifferent conſiſtency, which put in a Matraſs having ſomething a broad and large neck; and being placed on a round plate of earth or a piece of brick with a little Lute, you ſhall give it a circular fire by degrees to exhale the Menſtruum: then encreaſe it until the Matraſs becomes red on all ſides, and being cooled, you ſhall find in it an aſtringent *Crocus* of *Mars*, of a high red, very uſeful and excellent for outward applications, *viz.* to dry Wounds and Ulcers, and ſtop Hemorrhagy; it is of this *Crocus* that Chyrurgeons muſt alwayes make uſe in Salves and Liniments. We have this more nevertheleſſe to ſay of it, that if the Artiſt puts only ℥ j. of Filings of Steel upon ℥ vj. of *aqua fortis*, and evaporate it in a Matraſs in ſand to a dry bottom, he will have a *Crocus* eaſily diſſoluble of it ſelf, being put in a Cellar or ſome other moiſt and cold place, into a red Liquor, which is a ſoveraign Remedy to mundifie rotten, corroding and running Ulcers: as alſo thoſe which have contracted a Callus or foreneſſe in the brim, and abound with ſuperfluities of ſpongious and corrupted fleſh: for it conſumes all preternatural excreſcencies by the activity of the ſpirits and ſalts which are diſſolved, and renders the Ulcer capable of cicatrization by the aſtringent Faculty of its vitriolick Earth.

How

How the Crocus Martis *aperitive is to be prepared.*

WEE will deliver two manners of preparing this aperitive *Crocus* of *Mars*, as we have shewed two for the astringent *Crocus*. The first manner is by taking ℔ j. of Filings or dust of Needles very clean, which put in a stone earthen Pan very flat, then by degrees and gently moisten it with Dew-water, if your work falls in *May*, else Rain-water of the vernal Equinox, until the Filings begin to crumble, at which sign proceed no further lest you should drown your matter; for when it is only moistened in the form of a past or crums, it ferments and grows hot of it self with water, as by the touch and smell it may easily be noted: for there is a certain saline Spirit hidden in these waters which penetrates the Steel, and insensibly dissolves it: wherefore it must immediately be dryed in the Sun, and being dry, grinded on a Marble, and so moistened again without drowning, and in lesse then three or four dayes all the Filings will be converted into a black powder, which will begin to draw to a Violet purple colour in the superficies, and by a small taste of ink, or somewhat vitriolick, sheweth, that the water begins to make the reincrudation of the metal into his seminal principles, which are Sulphur and Vitriol; for when the water is put upon it, it sends forth a sulphureous odour, and the taste doth manifestly declare and discover the Vitriol. Note, that your matter must be grinded on the Marble as often as you dry it, and if you will discharge the parr of a carefull Artist, you may make three exsiccations every day, and end the operation in three weeks, otherwise you must bestow at least a moneth or six weeks, before the body of this metal may be reduced to an impalpable powder, which is coloured with a brown purple Violet, which having got, put it in a crude Iron Pot or Caldron, and upon open fire Reverberate, stirring it still with a Rod or slice of Iron, and as soon as it begins to grow red, take it away, and you shall have the aperitive Reverberated *Crocus* of *Mars* in a fair red brown colour. But it is much better not to reverberate it, because this heat may cause the Vitriol that begun to be fram'd in the *Crocus*, to exhale away, and this vitriolick salt only constitutes its aperi-

aperitive vertue. The Dosis of this *Crocus* must be from iij. *gr.* to xx. and xxx. provided it be given by degrees, and the stomach used to it by little an little; it is administred in Opiats and Conserves or mixt amongst aromatical Powders; it must be taken fasting, or the stomach being empty three or four houres before meales, and the Patient must walk after in some smooth and pleasant place; after the walk take a Broth of Veal and Chicken made with Parsly and Spanish Scorzonera Roots. This Remedy is usefull for all Chronical Diseases, Cachexy, Leucophlegmacy, and all other Diseases proceeding from splenetical obstructions, or obstructions of the Liver, Mesentery and Pancreas; but there are alsome other Martial Remedies more quick and efficacious in their operation, as we will shew hereafter.

The second manner of preparing the opening *Crocus Martis* is this. Take a bar of good Steel and make it glowing in a Smiths Forge, in that degree of heat which they call *softering heat*, which is a kind of half-fusion, and being thus, have a great Pan full of water, over which you shall hold your Steel, and apply close to it a cake of Brimstone, which will melt the Steel, and drop by drop precipitate it in the water in small graines; continue this work until you have a sufficient quantity of the Steel in graine, which must be separated from the Brimstone that fell dropping along with the Steel in the water, then beat it in an Iron morter to powder, which must be run through a delicate sieve or Tamy, then prepared on a Porphyry stone, or Sea-shel with some opening water, until it be reduced to an Alkohol, the half whereof must be framed into Trochisks, then dryed and so kept; this is called *prepared Steel*. Then take the other half and reverberate it in an Iron Cauldron with naked fire, as we have said above, until it hath attained a red purple colour, without fear of consuming the vitriolick faculty; but contrariwise it will open more and more, this preparation being different from that of the foregoing *Crocus*; the Dosis is the same with the other, the precautions the same, and the use of it for the same Diseases; some there are that even do prefer it to the other preparations, but I am of a contrary mind.

How

How the Vitriol of Mars *is to be prepared.*

TAke Filings or dust of Needles very clean, and put it in a Glass Cucurbite, pouring by degrees upon it acid or sharp spirit of Vitriol, not altogether deprived of its phlegm; stir both together with an Iron slice, pouring as much of it as that the matter may be well imbid'd and satiated therewith, and have a special care not to break the Cucurbite, and immediately pour upon distilled Rain-water, or Rain-water taken up in the Equinox without distilling, which may be almost boyling hot, to the height of four fingers, place the Cucurbite in sand already heated, and there leave it in digestion and dissolution the space of xij. hours; which done, filtrate the warm Liquor and put it to evaporate gently to the consumption of one half in the vapour of a boyling Balneo, and then place it in a cold Room to shute Chrystals, which you shall finde the next morning bright and green round about the Vessel, which put between two papers, and dry in a slow and gentle heat; and if you desire a greater quantity, pursue the same work upon the remaining dust or Filings with the spirit of Vitriol; then with warm water filtrate, evaporate and chrystallize until the whole body of the metal be converted into Vitriol, or a litle of earthly sediment remains if the Filings were pure: But the quantity of your Vitriol will go much beyond the weight of the Filings, exceeding sometimes even to a third part: by which the Artist may be taught that it is but a Recorporification of Vitriol, having resumed his vitriolick Idea and Character by the help of *Mars*, as being a body which was once vitriol: but we must confesse, that this Vitriol surpasses much in excellency the common Vitriol, out of which the spirit used in this Work hath been distilled: for the recorporified Spirits have a great sphere of activity, and do much more powerfully work, then the matters purely and meerly naturally. This Vitriol hath more efficacy and acts with much more quickneſse then the aperitive *Crocus*, in all the Diseases which we have before mentioned, but the Dosis is much lesse: for it is given beginning with one *gr.* and so continuing by

degrees till you come to viij. x. and xij. *gr.* either in Bolus in some Preserve, or in Broth. But you must note, that the use of Remedies extracted from the *Mars*, must be long continued and taken still, encreasing from j. *gr.* to ij. until at last it begins to raise and provoke the stomach and cause a nauseousnesse; then go back from ij. *gr.* or somewhat more, because it appears that Nature is then in the right time of bringing the Remedy to a desired successe without much violence, if it be not encreased: You must note besides, that those that use Steel-Remedies, ought to be purged every fourth day, in case the Remedy it self doth not provoke Nature, and every other day the belly must be opened by a Glyster of pure new made stale: for as the Steel hath a dissopilating and opening Vitriol, so hath it likewise a constipating and drying earth; wherefore every fourth or fifth day infuse ʒ ij. Sennæ with ϑ j. vitriolated Tartar in Veal or Chicken Broth, to carry away and drive out of the body those matters which the Remedy hath made fit for evacuation. Those that desire to have a very fine and useful *Crocus Martis*, must calcine ʒ iiij. of this vitriol of *Mars* in a Crucible with open fire, until it be converted into a fair subtile red powder, having no ill or unsavory taste, and fit to be given to the most delicate Palats, in Bolus, Lozenges, or Opiates from v. *gr.* to xxx. with the same observations and precautions as are hinted above.

To make the Extract or Syrup of Mars.

℞ ℔ ſ. of Filings of Needles very pure and clean, mix it with ℔ ij. of good white Tartar of *Montpellier* reduced to subtile powder; then fill up the third part of some Iron Cauldron of reasonable bigneſſe with water, and put it on the bare fire, but your water must be Dew-water; or water taken up in the vernal Equinox, or distilled Rain-water, make it boyl, and when it is thus ready, pour into it gently and by degrees the Steel and Tartar mixt together, not above ʒ j. at once, by reason of the ebullition and working up which happens in the dissolution of the matter at first; then all being put in the Vessel, stir it continually in the bottom with an Iron Ladle, to raise up in the uppermost part

part of the water amongst the walmes, that which would otherwise settle in the bottom, and by this means hasten and ease the dissolution thereof: you must also keep in a pot by it self upon the fire, some of the water, like unto that wherewith the dissolution is made, that it may be restored warm in the place of the other, that the action of the fire causes to evaporate away, which must be repaired from time to time, lest the Tartar should too much coagulate, by want of moisture, or burn in the bottom or about the Vessel; and moreover, have a care that the Menstruum may be in sufficient quantity to dissolve well the Tartar, which by its acidity doth work upon the *Mars* and dissolves it; keep the fire going still, stirring and renewing with new water, until the Artist sees that the Liquor contained in the Pot or Cauldron be quite altered, and become thick and of the colour of a whitish gray, having brown and blackish veines about it; and moreover, the matter gathers a smell and odour as of sulphur of *Mars*, which is something unpleasant and nauseous; but the last and most concluding sign of the end and perfection of the operation and the dissolution of the Steels is the taste: for filtrating some small quantity of the Liquor, when the above mentioned begin to appear, if the Liquor be of a brown red colour, and hath a taste of Ink, and Vitriol between acid and bitter; then must you fill up wholly the Vessel with boyling water, and filtrate it being yet warm, putting the same as it is filtred in another Iron Vessel, wherein you cause it gently and without boyling to evaporate away; and thus go on filtrating and evaporating, until the Liquor be reduced to the consistency of a Syrup or half Extract, which you may know when a thin skin shall rise above the evaporating Liquor; then draw the Vessel off from the fire, and your matter being cooled, put it in a white earthen Pot to keep for the time of use. It will not be very difficult to perswade the lesse knowing, that Extract or Syrup, is one of the best Remedies produced by the Art of Chymistry; for it is known to all, that Tartar is a friendly Salt to our Nature, and of it self a great opener and disopilative Remedy; there are also very few but know, that Physitians have in all Ages made use both of crude and prepared Steel, or its Crocus to open obstructions, and for the cure of chronical and obstinate Diseases, which have seated in the Region of the

Ventricle, Liver, Spleen and other adjacent parts: But I can very ſincerely ſay, that all what we have delivered above, muſt give way to this Martial Extract; for after that Tartar is once intimately united to the *Mars*, and that both have acted and reacted one upon another in ſuch a manner, that the one hath loſt its great acidity, and the other its metallick corporeity as it hath happened in this operation, a third ſubſtance reſults from thence endowed with all neceſſary qualifications, to act according to the intent of the Phyſitian, *Citò, tutò, jucundè*: for this admirable Remedy can never be hurtful, but alwayes profitable and good, as we our ſelves have found it by experience, in the cure of many great and dangerous maladies made by the due adminiſtration of this noble Medicine; which is given very fortunately and with a ſurprizing and unconceivable ſucceſſe, in the beginning of the ſwellings of Dropſies, againſt the ſchirrous Tumors of the Spleen, againſt all obſtructions of the parts of the inferiour Ventricle, againſt the pains of the Reines and Bladder, againſt the evil fermentations of the ſtomach, againſt Wormes in young and old, the ſeminary whereof it doth radically extirpate; againſt intermittent Feavers, chiefly thoſe which Phyſitians call *Stomach Feavers*; and to be ſhort, generally againſt all coagulations of tartarous matters in whatſoever part of the body ſeated. The Doſis is from v. drops to Lx. in Broth, aperitive Decoctions, or ſpecifick Waters appropriated to the moſt apparent and predominanting Diſeaſe.

To prepare the Salt of Mars.

℞ ℔ ſ. of Filings of Steel very ſmall and clean, and being put in a ſtone Diſh or Pan, ſprinkle them with very good diſtilled Vinegar until it is become a Paſte, which dry after to the ſteam or vapour of *B. M.* and when it ſhall be ſufficiently dry, grind it upon Marble, and moiſten it again with the ſame Vinegar; then dry, grind and moiſten again ſo often, as you may at laſt diſcern by the taſte in your matter a ſweetiſh taſte, predominating in the body of your *Mars*; then put this powder in a Cucurbite, and pour upon it phlegm of Vinegar half a foot high, and place the Cucurbite

Cucurbite in sand, and cause the liquor therein to boyl, that the extraction of your salt of *Mars* may be the better perfected; but have a care to put still new warm phlegm of vinegar in the place of that which in the boyling vapours away; and when you see your Menstruum sufficiently impregnated, filtrate it being cold that it may come away the purer; the filtrated Liquor put in *B. M.* and draw off ij. or iij. p. of the Liquor in the heat thereof; then place your Cucurbite in a cold place or Cellar to make the salt shute into Chrystals; separate the Liquor swimming over the Chrystals, then evaporate again and turn to chrystallize; and this work continue till it will yield no more Chrystals; then dry them all, and being dry put in a double or circulatory Vessel, and pour upon alkohol of Wine three fingers high, stopping and shutting closely the joints of the Vessel; and so putting it in a vaporous Balneo to digest with a slow heat during the space of seven natural dayes; which being past, unstop the Vessel and put a Still-head upon it to draw off the spirit of Wine in the same heat, and in the bottom you will find a salt of *Mars* very pleasant, and without compare to remove obstructions, chiefly for weak and tender bodies; it is good in general against all melancholick affections, and griefs of the Reines and Bladder, but it is particularly dedicated to the relief of dropsical Bodies, and fits or obstructions of the Mother. The Dosis must be from iiij. *gr.* to xx. in Broth or Decoctions, or appropriated waters according to the Disease.

To make the astringent Tincture of Mars.

℞ ℥ iiij. of Filings of Needles very pure and clean, and having put them in a glasse Cucurbite, pour upon spirit of ♀ or Copper until they be sufficiedtly moistened and begin to cleave together; then cover the Cucurbite with a Still-head, and draw off the spirit in a slow heat in ashes to a dry bottom; and if what you have drawn hath any taste, cohobate it again; if not, moisten it again with new spirit of *Venus*, and dry as before, and go on thus doing three times, or until your *Mars* be changed into a very subtil and red Crocus; then grind it on a Porphyry stone and

and put again in a Cucurbite, and pour upon of the same spirit of ♀ four fingers high, and having adapted to it the double Pan or Blindhead, place it in *B. M.* to extract, until the Spirit be turn'd very red; then separate the Tincture, and pour again new Menstruum, and go on thus doing so long as it will take colour; this done, put all the Tinctures together and filtrate them, draw off the spirit of *Venus* in *B. M.* until it hath got the consistency of a thick Syrup, upon which pour spirit of Wine three fingers high, which digest in the vapour of Balneo and let extract; then filtrate and extract with the same Menstruum until no more will come; and having filtrated all the Tinctures, draw off three parts of the Liquor, and you shall have an astringent Tincture of *Mars* remaining, which is none of the least secrets in Physick, and worthy the Closet of a curious Artist. This Tincture is administred by drops, from iiij. to xv. and xx. in Decoction of Plantain, or water of the juice thereof; it may also be given in water sharpened with juice of a Pomegranate. It hath the vertue to stop all immoderate fluxes of the Belly, to correct and allay the griefs and irritations of the Pylorus or Blind-gut, cure Dysentery and Lientery, as also red and white fluxes of Women, and the hemorrhoidal also; finally it dryes Gonorrhea and cures heat of Urine, and stops all manner of Hemorrhagy.

To make the aperitive Tincture of Mars.

℞ ℥ij. of Vitriol of *Mars* prepared in the manner we have taught here above, reduce it to powder, and mix with it equal weight of salt ☿ of *Sennertus*, made in powder also in a Marble Mortar, and you shall wonder that on a sudden this wonderful Salt shall draw the soul of *Mars* or his sulphur out of the Center of its vitriol; for although this salt be white and the vitriol likewise, it is no unpleasant surprisal to behold in an instant a red to predominate higher in colour then that of the Saffron; this Masse must be stirred and agitated, and it will soon be reduced to a Pap, then expose it to the moist ayr that the whole may be resolved into a Liquor, which is already of it self an aperitive and disopilative Remedy, which may be given against all manner of

of obstructions, and against the coagulation of Tartar in mans body, from vj. drups to xv. in Broth or aperitive Decoctions. But this substance is yet too course, and will shew that our Art is capable to bring substances to the highest pitch of their perfection, and the last degree of their subtilty. To this end weigh the red matter, after it hath been mixed in a Marble mortar; and note the weight, weigh it also after its dissolution in the ayr, to draw off by distillation in *B. M.* the weight of the moisture it hath attracted from the ayr, and to pour upon it as much of the spirit of ♀ as this moisture doth weigh, then digest them in the vaporous Bath together, in a digesting or double Vessel the space 24 hours, after which draw off the spirit with a Still-head to a consistency of Syrup somewhat thick, upon which pout tartarized spirit of Wine four fingers high, then close up the Vessel with a Blindhead and digest it three natural dayes; at the end whereof filtrate the Tincture cold, and draw off the half or two parts of the Menstruum in Balneo in a slow heat, and so shall you have one of the noblest Remedies which the matter helpt by Art can ever bring to passe, as much for his vertue as for his pleasantnesse of taste. This noble Tincture doth eat up and resolve all manner of tartarousnesse in mans body, which wheresover it coagulates, is the spring and cause of all obstructions: wherefore it may securely be administred in all the maladies, where it is necessary to open and expel superfluities. But the most wonderful thing of all is, that it hath or beares no weight upon the stomach, as for the most part are all the Remedies taken from *Mars*; contrariwise, it strengthens the Ventricle, and purifies it from the coagulated clammy humours and viscosities, which for the most part cause the losse of appetite; it is moreover a great Antiscorbutick, because it disburthens the Spleen, purifies the masse of the blood of those gross and earthly impurities, whereby all the evil accidents of this pernicious Disease are occasioned. The Dosis must be from v. drops to xx, and xxx. in appropriated Liquors, so many times mentioned by us above.

How

How the red Chrystals of Mars *are to be prepared.*

MAke first a very good *aqua fortis* with equal parts of Vitriol and Salt-peter; the description whereof we shall give in the Chapter of Salts. Of this ℞ ℔ j. and therein dissolve ℥ iii!. of very pure and dry Salt-peter; then put ℥ vj. of Steel in whole pieces, as big as the finger, and two inches long, in the bottom of a Cucurbite plac'd in ashes, and having poured the *aqua fortis* let it act and work thereupon; But note, that the Cucurbite must be big and capacious, and that it is not without reason we prescribe to put Steel in whole pieces, and not Filings; for the Vessel would too suddenly contract a heat, and cause too sudden an ebullition, what care and precaution soever could be taken by the Artist; but when it is in body, the Menstruum or dissolving spirit cannot penetrate it, neither work upon it but gently and by measure. We thus alter the manner of our work and Processes, the better to prepare the judgement of the Artist against such accidents which may happen in the working; to hasten the dissolution, give a slow heat to the ashes; and when all the action of the Dissolvent or Menstruum is past over, pour in the Cucurbite ℔ ij. ℈. of good distilled vinegar something warm: but you must pour it in gently, and softly stir the matter in the bottom; but if by chance some small piece of the Steel was found left there, take it away before you pour the vinegar; then digest this Solution three continual dayes in *B. M.* and it will become very red, then filtrate through a paper and evaporate in *B. M.* to draw off the two parts of the Menstruum by distillation, and placing the Cucurbite in a cold place, it will shute into red Chrystals, having yet in them some kind of impurity; put them together aside and evaporate the remaining Liquor, to draw off from it what may turn again into Chrystals; then put all the Chrystals together, and dissolve them in a sufficient quantity of distilled vinegar; filtrate the Solution, and draw half of the Menstruum in the slow heat of *B. M.* then put it in a cold place to shute into Chrystals; and so go on in dissolving, filtrating, distilling and chrystal-

chrystallizing until your Chrystals be very fair, red and transparent, and that no more feces or separation of impurities will settle in the bottom of the Vessel where the chrystallization is made; dry the Chrystals in a slow heat between two papers, and put them in a glass Viol to keep for use. This Salt is a very subtil and pleasant Aperitive, which is administred in Broths or Apozema's, or even may be given as a true Martial Tartar, without any danger of the *aqua fortis* used in the dissolution; for it is to be known, that all the corrosion of the spirit of *aqua fortis* is blunted and deaded by its own action upon the Steel, as it may be perceived by the pleasing taste of the Chrystals resulting thereof. The Dosis must be from vj. *gr.* to xx. and xxx. and if the Artist be curious, he may take ℥ ij. of the Chrystals, and as much of very fair Armoniack salt, and grind and mix them together, and being put in a luted Matrass, place it in sand, so as it may lye but a fingers breadth from the Iron vessel containing the sand; then by a gradual fire, drive it so high that the Armoniack salt may sublimate and carry along with it self the sulphur of *Mars*, and so shall he have Flowers very red and efficacious for a Diaphoretick and Diuretical Remedy against intermittent Agues, and chiefly against Tertians and Quartains; and if you have sublimated of these Flowers in any considerable quantity, you may dissolve one part thereof in warm water, to separate the salt from it by edulcoration and lotion, and you shall have the true sulphur of *Mars* in its perfection, which you may use as a soveraign Diaphoretick. The Dosis of the Flowers is from ij. *gr.* to x. or xij. and of the Sulphur from j. *gr.* to vj. in Bolus or convenient Liquors.

Of Copper and its Chymical Preparation.

COppet is the second of the lesse noble of the hard metals of the second Classis; it is according to *Paracelsus* compounded of a purple Sulphur, red Salt, and yellow Mercury. But as we have said of Iron, so may we of Copper, that it hath much vitriol in it self, and lesse of earth then Iron, and by consequence lesse impurity. It is amongst Chymists called *Venus* ♀, because it receives the influences of that Planet, and relates to the parts

in Man dedicated to generation. The general vertues of Copper are, to ſtrengthen the ſpermatical and generative parts, both in male and female, inſomuch as that the Antients and *Hippocrates* himſelf and his ſucceſſors after him have had it in great eſteem; and made very frequent uſe of it though in a rude and courſe way, being not yet aſſiſted with the light of Chymiſtry, which doth from this metal draw admirable Remedies, and particularly that wonderful Spirit of ♀ *Venus*, whereof we have ſpoken above, and whereto we are already come.

We could very well lay down and deliver here all the manners of calcining Copper, either by Diſſolution, Illinition or Cementation; but as all theſe operations do rather relate to the metallick then Phyſical part, we will not inſiſt on it to purſue inceſſantly and with leſſe intermiſſion, our purpoſe of diſcovering the noble Remedies which metals do afford us: we will then firſt ſpeak of the preparation of green Copper or Verdegreaſe, which is more full of myſterie then is commonly imagined, though this operation be common, and performed only by the Women and Maids at *Montpellier*.

The preparation of green Copper, or Verdegreaſe.

GReen Copper to ſpeak properly, is nothing elſe but the volatilization of Copper in very ſubtil Vitriol, by the help of Tartar contained in the huſks and recrements of the Grape after the Wine is expreſſed and ſqueezed out of it. But this operation cannot be performed in all places where Wine doth grow, which muſt give a Chymical Artiſt occaſion to reaſon thereupon, and ſeek after the cauſe, in examining the matter which produces this green, which are the copper and the cakes of the huſks of Wine. Now all kind of Grape hath its recrement after expreſſion, and yet all expreſſion of Grapes is not capable to reduce the copper in green, as this is that comes from *Montpellier* and the adjacent parts, and therefore conſequently there muſt be ſomething in that Grape of *Montpellier* capable to work upon and extract ſooner then others, the vitriol of Copper without corroſion, which cannot be done but by the help of a ſubtil and active Tartar, which pe-

penetrates the copper and changes it into green, and yet this Tartar is undiscernable and imperceptible in the recrements of the Grape; but after the copper is stratified with this expression, and put in a convenient place, the inward fire and fermentative spirit of these cakes of Grapes excites and stirs up a heat, which brings it from power to act, and doth volatilize the Tartar contained thereunder, changing it into a subtil spirit not altogether Wine or vinous, neither yet become vinegar, so that it doth possesse volatile sulphureous qualities, and yet hath in its self a Saline, Mercurial and acid Spirit, which acts upon the Copper, and turns it into that substance we call *green Copper*, being the ground and Basis of our spirit of *Venus*. It is not without reason we have made this digressive Discourse upon *green Copper*, made with the Recrements or expression of Wine about *Montpellier*, for it altogether differs from that which is made with Vinegar and Copper shut up in Barrels; for we know that *Languadock* and *Provence* Wine, and chiefly that which growes about *Montpellier* doth yield great store of Tartar very pure, and very excellent both for Physical Remedies and Chymical Operations: Now it is only the subtilest part of that matter which Nature intends for Tartar, that volatilizes it self, and without any violent corrosion works upon the Copper; for it is rather performed by an amicable and friendly kind of dissolution: But Vinegar doth operate more violently, and doth not join nor unite it self to the substance of the Copper, as this middle Spirit doth; which truth will be made manifest by the extraction thereof, which we will teach, its chrystallization and distillation, by the Discourse we shall annex unto it for the greater instruction and satisfaction of curious Artists and searchers of Nature.

To make the volatile Vitriol of ♀.

WEE have shewed above, that *green Copper* was nothing else but an open Copper dissolved, and as it were volatiliz'd by the tartarous fermentative spirit of the recrements of the expression of Wine; and we have said somewhere else, when we spoke of Vinegar and its distillation, that its spirit was also

nothing else but a kind of subtiliated Tartar, spiritualiz'd and made volatile. This granted, we shall easily make our Artist conceive that the extraction of *green Copper*, which we now are about to teach, is but a sequel and dependance to bring this Agent and Patient to a more subtil volatilization; that after we have converted the *green Copper* into a clear, blew, subtil, and as it were already volatile vitriol, we may afterwards by distillation bring it to one of the most quick and wonderful Spirits hitherto us'd, either in Physick for the cure of Maladies, or in Chymistry for the dissolution of Bodies, and being a mean of uniting and joyning together several substances which seem altogether to be heterogeneous, and uncapable of being brought together without the help of this wonderful Spirit, which proceeds from the volatile vitriol of *green Copper*, which is thus prepared.

Take ℔ iiij. of good green copper or Verdegrease of *Montpellier*, and being made into a very subtil Powder, put it in a glasse Cucurbite, and pour upon it good distilled Vinegar six inches high, stir it often with a wooden Slice, the Cucurbite being plac'd in sand, and the Menstruum being ting'd with a very high green; decant it clear of the matter, & pour on again fresh vinegar, which digest and stir as before, and decant when it is sufficiently coloured; this repeat four times, and if the Menstruum be not much tinged the fourth time, boyl all together in a copper Cauldron, until it hath extracted and dissolved what it can get from the remainder of the green Copper: finally, you shall thus continue to proceed with new distilled vinegar until all your matter be dissolved, the utmost remainder of which will not extend to above ℥ iiij. or v. of feces and earthly sediment, which hath no metallick quality at all, except you finde it in some smal pieces of Copper Plates, which by the negligence of those who scrape the substance dissolved by fermentation do remain in it, but all the remainders is but meer earth.

All these Tinctures then must be joined together, and filtrated cold through Paper, and the filtration put to evaporate in an earthen stone Pan, in a slow heat in the vapour of *B. M.* then digest again that which after filtration is left in new distilled vinegar, filtrate it and join to the other Tincture, and thus go on until all be run cold through the Filter to a clear Liquor, and as

green

green as *Emerald*; and when you shall see the evaporating Liquor to begin to contract a skin in the upper part, put the Pan wherein it is in a cold place, and let it rest there until the next day, and you shall find in the bottom and sides of the Vessel Chrystals of fair blew Vitriol, which having put between two Papers, dry in a very slow and moderate heat; for the Sun is even capable to deprive this Vitriol from its best spirit, so volatile it is; wherefore the Artist must be very circumspect and wary in this particular, lest otherwise he be taught to become so at his own charge and by his own experience. And if the last Chrystals, or even the first extracted, were not very fair, blew and transparent, let them be dissolved in new distilled vinegar, and let there be no more then the just or fitting quantity to dissolve them cold; let the dissolution rest without stirring 24 houres, that in case there be any atoms of feculent matter separated and rais'd in the first evaporation, they may settle again. The clear Tincture shall be very softly drawn off by decantation without stirring the bottom; and when you come near unto it, filtrate the remainder through Paper; and if there be any considerable substance remaining in the Filter, dissolve it in new distilled vinegar, then filtrate the Tincture, which join with the remainder, and evaporate to half consumption as gently and slowly as you can, then put it to shute into Chrystals, and you shall have them in great perfection; dry them with the precaution and care we have already hinted above, and end the rest of your operation in the same manner likewise: all being dry, you shall find as much Vitriol as you have dissolved of green Copper, if you have proceeded exactly and even, you shall find more; for all the saline, acid, tartarous substance of the vinegar, is joined to the Vitriol, and causes even its chrystallization; for all the evaporating steem though it hath the smell of vinegar, is nevertheless altogether insipid, and hath no more of taste then Rain-water when distilled it drops out of the nose of the Limbeck. So that they which desire to be yet more accurate and successful in their operation, must proceed in the dissolution of their Chrystals in new distilled vinegar, until they can discover by trying a distillation in *B. M.* or at the most in ashes, whether the vinegar ascending be yet insipid, which if he finde to be so, let him go on in the Dissolution, Filtration, Eva-

vaporation and Chryſtallization, until the vinegar come out with the ſame ſtrength and acidity as it was poured in. This being ſo, you have attained the true Point of requiſite perfection which this noble Vitriol muſt be brought unto; then dry it very ſlowly and gently between two Papers, to make the ſpirit thereof as we ſhall immediately teach, after it hath beed digeſted three ſeveral times with very good alkaholiz'd ſpirit of Wine, three fingers high above it, in a double or digeſting Veſſel the ſpace of 24 houres, and after that this ſpirit hath been drawn off every time in *B. M.* to open it more and more, that it may be endow'd with thoſe Vertues and Perfections, which do ſhine and are required in the Spirit drawn from it.

The Diſtillation of the Spirit of ♀.

THis is the Operation wherein a Chymical Artiſt hath need of all his Patience and Judgement, if he will ſucceſsfully perform this intended Diſtillation, which will be to him a guide and a Pattern whereupon to proceed in all others, by reaſon of the great volatility of the matter he works upon. Let him then take his Vitriol when it is very dry, and reduce it to powder in a Marble Morter, then put it in a Retort with a long neck and wide mouth, and all that matter being put in, let him be careſull to cleanſe the uppermoſt part of the Retort, and the whole neck with a Feather tyed to a ſmall ſtick, that he may not be deceived in believing that the greeneſſe he ſhall perceive in the diſtilling drops ſhould have contracted their colour of Vitriol which might have been left there when it was poured in the Retort. After this he ſhall place his Retort in a cloſe Reverberatory Furnace, leaving four Regiſters on the corners of the roof of the Furnace, and another in the middle, to be able to govern the fire with more command and better moderation; wherefore theſe Regiſters muſt be ſtopt with cloſe and well-fitted ſtoples. Then let him fit a very capacious and large Glaſs Recipient very clean and dry to the neck of the Retort, and ſtop the joyning parts with a wet Bladder, and lute them moreover with Quick-lime and whites of Eggs, as we have often repeated in this Treatiſe; and when the

the Lute is dry, let him begin to give his fire judiciously and slowly, forbearing all hastinesse; and rather expecting with an exemplary Patience that the matter should by degrees drive and send up its vapours, which shall thicken and condense themselves in the neck of the Retort, and fall by clear and limpid drops into the Recipient: for the nose or mouth of the Retort must at least advance four fingers deep in the body of the Recipient, that he may discern the diversity of colour of the distilling drops; not so much to feed and satisfie his own curiosity, though it be a very pleasant diversion, as to regulate the better his fire, which in this Operation is one of the most important considerations; because if he never so little encreases the fire without necessity, it may occasion the losse of the whole substance, and the breaking of the Vessels; wherefore he must be here very vigilant to do nothing whereby he may receive a prejudice, a thing generally to be observed in all other distillations of Salts, whereof our Artist intends to draw the Spirits. We thought fitting to describe this circumstance of the Work with all imaginable punctuality, that in case any by too much haste and precipitancy comes to miscarry, he may not lay the fault upon us. This tenor and state of heat is he to keep so long as the drops shall fall clear, and not to urge his fire by any means: for the drops will fall fast enough, if slowly you reckon six between the interval of every falling drop. But when the drops begin to turn green, and the white vapours to appear in the Recipient, and condense themselves into Spirit and in a subtil Liquor which frames in the glasse Filaments and winding veines about the said Recipient, it is a token that the volatile Spirit begins to manifest it self abundantly, and that you must then go on slowly and avoid all precipitancy and overhaste, for the Recipient grows hot by the heat of the vapours and the afflux of the Spirits. The clear drops last about four or five hours, the green and first volatile vapours as much. That being over, you must begin to encrease and urge the fire, and the Recipient will totally fill it self with very white vapors, which will continue increasing still the fire more and more the space of five or six houres, and towards the end by the intense and vehement action of the fire, yellow drops will fall, which by little and little will turn to a redness, which is an absolute token of the end of the

the operation, lasting for the most part twelve or fifteen houres, according to the greater or lesser quantity of matter in the Retort. The vessels being grown cold, take off the Lute, joyning the Recipient to the Retort, and pour the yellowish Spirit, which hath a strong sulphureous smell in a Cucurbite; which having placed in *B. M.* and luted exactly a Still-head to it, as also the Matrass, which is to be applyed to the nose of the Limbeck, give a fire proportionable to the volatility of the matter; for this Spirit riseth as easily and nimbly as spirit of Wine; but the fire about the end must be a little more urg'd, and the whole substance will ascend leaving a dry bottom into a volatile and very penetrating Spirit, possessing more vertues then can be expressed, whether us'd as a bare Remedy, or as a preparation to other Medicaments; this noble Spirit opening and dissolving bodies without corrosion or alteration of their seminal powers and faculties, and that which is more surprizing and above all to be admired is, that this Noble and Wonderful Spirit keeps the same vertue in Physick, and the same dissolutive faculty, after it hath served to the dissolution and preparation of many different substances, either Stones or Metals. We will not affirm nevertheless, or contend that this Spirit remains unalterable: But this we can, that the experience we have had hitherto, has never discovered unto us that he can lose any part of his acting faculty: contrariwise having drawn it off by distillation, it hath ever kept in our hands the same strength and vigor it had done before, either us'd upon the same matter or upon another, as those will most certainly finde that shall employ it in their operations. It is a soveraign Remedy against Epilepsies of what kind soever, Apoplexy, all irritations of the Mother, all Hypocondriack and melancholy Diseases, inveterated griefs and pains in the head, and all scorbutick maladies; It is admirable fron j. drop to x. in appropriated Liquors; but the most judicious Dosis in all Liquors is to a pleasant acidity. We cannot forbear to insert here the very same words which Doctor *Zwelfer*, Physitian to his *Imperial Majesty*, hath in that Appendix, which discovered this Treasure unto us; where he concludes the praises he hath given to this Spirit by these words: *Et ut summatim dicam, tanquam expertus in multis affectibus, qui Herculea etiam remedia rident, & contemnunt, ad hunc Sp. tanquam*

quam asylum si quis accurrerit, medicamentum reperiet qu vis precio redimendum; Hoc fruere lector amice secreto, & favore mei pro fideli communicatione benevole perseverа. This is in few words the sense and testimony of this expert Physitian; wherefore I do yet insist after him, and advise earnestly all Physitians and Artists not to neglect the practice of the Remedy and Dissolvent, both concentred and joined in one substance.

But though we have herein taught the noblest Remedy that can be extracted from Copper, it is nevertheless necessary to teach the workings of some usefull Operations in Physick and Chyrurgery, that when the Chymical Apothecary shall meet with them in any Author, he may be able to prepare them, that the Physitian, when he shall find a fit and convenient way, may make use thereof, for the preservation and recovery of Patients.

To prepare the Vitriol of ♀, with the Narcotick Sulphur, and Crocus thereof.

AMongst the several preparations made upon Copper, none requires or contains so many operations for the manner of the Work, nor so many useful Remedies at once as this we are now about to teach; for which reason we have chosen it to inform the better our Artist by the same, what he may be able to perform upon Metals, to reduce them to their Principles by a gradation of operations: For as we have said that Metals were once Vitriol, so have they been also Sulphur before they were altogether coagulated and hardened into a metallick Body, which is the cause that Art is necessitated to make use of Sulphur as a middle substance to divest Metals from their Body, and reduce them into Vitriol, which is thus prepared.

Take Copper in Plates and cut it in small pieces, which may conveniently be stratified in a great Crucible with Brimstone reduced to powder, beginning to stratifie by a lay of Brimstone, and then putting one of Copper, and thus continuing to stratifie till the last lay be also of Brimstone; the Crucible being full, which must be covered with a Cover, having a hole in the middle of a bigness to run through it a Goose-quill, lute both

Crucible and Cover with a good Lute not apt to crack, and let it dry gently; when it is well dryed, place it in a Circular fire, and for the space of an hour give it a graduate fire by little and little, that the Brimstone may softly melt and penetrate the plates of Copper before it takes flame, because it will calcine it much better in this manner; then bring the fire nearer from the Crucible, and encrease it by degrees until the Brimstone takes flame, and begins to send it out under the form of a Pyramid by the hole of the Cover; then bring the fire close by, and without adding any more, encompass and cover with it the Crucible, for the addition of more fire would be unnecessary, since the flame of the Brimstone coming to cease, the first calcination which is the scope of your operation is performed; therefore nothing more remains to be done, then to let the Crucible cool to draw your Copper out of it, which is raised and become spongious and brickle as Glass, and red when grounded to powder; they that will have but a course Crocus of ♀, may take this calcin'd Copper, which in the shops is called *æs ustum*, grind it to powder and Reverberate it three times 24 hours, and they will have a red powder very open, and a fit Ingredient for Salves and Plaisters; as for the true proportion of the said Crocus, we will teach it hereafter. But there is one thing to be noted here, and not to be past by, which is, that the plates of Copper must three times be made red hot in a Crucible in a wind-Furnace, and as many times quench't in Urine, because this opens them and prepares to Calcination, insomuch as all the rest of the Operation is performed with much more ease.

Take then this Copper thus calcin'd, reduce it to Powder, and for every ℔. add ℥ j. ♀. or ℥ ij. of pulveriz'd Brimstone, which must be exactly mixt: and having fitted an earthen Pot not glazed upon the Furnace, so as to be fast and stable, and fit to be heated by the bottom with moderation and encreasing of the fire, put the said Powder in, and give it a graduate fire, continually stirring with a Scraper of Copper or Iron, that the Powder may not stick to the Pot, having a special care to burn away all the Brimstone, and if the matter crumbles, cease the fire, and after it is grown cold grind it with the same weight of Brimstone, and thus seven times together repeat this Calcination, or, which may be a surer and

and better way, as much as there will be need, and until the Artist perceives trying by the taste that the powder of the calcined Copper is altogether vitriolick, and that being tryed with distilled Rain-water, the water takes both the colour and taste of Vitriol; that being so, put all the said powder in an earthen stone Pan, and softly by degrees pour upon it scalding distilled Rain-water, and nimbly stir it, and that a great while before you put it in digestion in sand, to extract all the vitriol from it; otherwise the Powder would harden and crumble so, as it were impossible to mix it well with the water, and the extraction or dissolution of the Vitriol would not follow, and so should you be put to begin your operation again. The water being tinged with a fair blew colour, filtrate and evaporate it till it begins to skin; then put the Vessel in a cold place, to stand there until the Chrystals of ♀ are fram'd; then separate the liquor swimming above, and evaporate again, and chrystallize, proceeding and reiterating this Work until no Chrystals more will rise; then dry them gently, and keep for the following preparations. This Vitriol may nevertheless without further preparation be employed in a small Dosis against Vices and Diseases of the Stomach and Brain; it kills Wormes, and strengthens the Brain against Convulsions, and the assaults of growing Epilepsies, it is also specifical to cleanse the Matrix; some hold it as a grand secret to dissolve a little of it in water against the burning and intemperate heat of the spermatical and other adjacent parts, and so use it for injections, wherein they are much in the right; but for all that, they ought not to deprive the Publique and all Practitioners of Physick and Chyrurgery of this Remedy (by concealing it to themselves) which produces so Rare Effects, because this Vitriol possesses in it self a very good portion of that sulphur of ♀, which is capable to appease the irritation of those parts; and the salt of it is a great detersive and present Refrigerative. The Dosis inwards is from iiij. *gr.* to xv. and for Injections the weight of ʒ j. in ℔ j. of Plantain water mixt with a little of the clarified juice of Housleek, or the great *Sempervivum*.

Preparation of the Narcotick Sulphur of the Vitriol of ♀.

℞ ℔ ♀. of Vitriol of ♀. ℥ iiij. of Filings of Steel, mix them together by long trituration in an Iron Mortar, then put the powder in a Matrais of ſmooth Glaſſe and very ſtrong; moiſten this matter by degrees with very good diſtilled Vinegar, until the whole maſſe be well faturated, yet without overflowing of the moiſture; the Matraſs muſt be ſomewhat broad in the neck, that the evaporation of the moiſture may the better be performed; then place the Matraſs in ſand, leaving but half a fingers ſpace between the bottom of the Veſſel containing the ſand in the bottom of the Matraſs, give fire and gently evaporate the Menſtruum, then encreaſe the fire ſo much as the bottom of the Matraſs may grow red, if it be poſſible; then ceaſe the fire and let the Veſſel cool, and break it to take away the maſſe remaining in the bottom, which will be of a red browniſh colour, make it in very ſubtile powder, and put it in a larger Matraſs, ſprinkle upon it good diſtilled vinegar, ſtirring the matter ſtill, until it ſwims above the matter the height of four fingers; then put it to digeſt and extract in ſand, and ſtir it often; it will become red and fair, and the vinegar being well tinged, ſeparate it and put new, and thus go on till your powder yields no more colour; then filtrate all the Tinctures, and ſlowly evaporate to the gentle vapour of Balneo, until your Liquor be reduced to a third part; which precipitate with oyle of ♀ made *per deliquium*, until all the ſulphur be ſeparated from it; For the ſalt of ♀ attracts to it ſelf, and unites it ſelf in the Liquor to the ſalt of Vitriol, and the ſulphur being no more mixt with its ſalt, precipitates and ſeparates it ſelf from the moiſture, and falls in the bottom of the Veſſel; let the ſulphur ſettle, and decant and draw off what ſhall remain ſwimming above, and pour upon the ſulphur, lukewarm diſtilled Rain-water to edulcoration, and thus continue it till the water coming from it be inſipid, then dry this ſulphur very ſlowly, and keep it in a Glaſſe Viol for uſe. This Sulphur may be given in Bolus or diſſolution,

on, in some Hysterical or Antiepileptical Water, from *gr.* j. to vj. against all the affections of the Uterus or Mother, Sympathetick and Idiopathetick Epilepsie. This Sulphur is an Ingredient of the *Laudanum without Opium of Hanrmannus*. But the Tincture of this Sulphur hath quite another efficacy, then when it is yet in Body, and is thus prepared.

The Tincture of Sulphur of ♀.

℞ ℥ j. of the above mentioned Sulphur of vitriol of ♀ four fingers high: put up the Matrass with its Blindhead, and put the digestion in *B. M.* with a slow heat, until it be well tinged with the Tincture of the Sulphur, separate the Tincture and go on in your extraction until the Spirit takes no more, then filtrate the whole matter, and draw off the Menstruum to the consistency of a liquid Extract, upon which pour of the alkoholiz'd spirit of Elder-berries three inches high; then cover or lute your double Vessel or Pelican, and place it in the slow heat of a vaporous Balneo, and let it circulate, digest and extract seven dayes together without interrupting the heat, and all the Tincture of this Sulphur shall communicate it self to this Spirit, which already of it self is an Hysterical Specifick. This essence must be filtrated in cold, and the half of its Menstruum drawn off in Balneo, and so shall you have the true volatiliz'd sulphur of *Venus*, useful against diseases of the Brain and affections of the Mother. The Dosis is from one drop to 8. 10. or 12. in Broth or appropriated Liquors.

To prepare the Crocus of Vitriol of Venus.

℞ ℔ j. of this Vitriol; and being put in a Cucurbite, place it in a close Reverberatory, and fit to it a large Recipient, which being exactly luted, give to it a gradual fire, and keep it 48 hours with coals: then after this use very dry wood to give it the last degree of flaming fire the space of 12 whole hours, and thus shall you be sure to have extracted the phlegm, volatile spirit, acid and cor-

corrosive Spirit, or Oyle so improperly called of the vitriol of *Venus*, and to finde in the bottom of the Retort an astringent Crocus, high and subtile, which some do call *the Caput mortuum* of this Vitriol. There are some who prescribe to put this Vitriol in a Crucible, to calcine and reduce it to a Crocus, but I am of a contrary opinion, and cannot endure that an Artist should lose what is the best and most full of vertue in his substances upon which he doth work; for Calcination being performed in a Crucible, it must of necessity follow, that all what is found condensed in the Recipient after distillation, doth exhale and vapour away to nothing; but it must not be so, since the Crocus found in the Retort after this distillation, is not inferiour, but rather purer and better then that made in the Crucible; if all the Liquor be rectified in ashes or sand to a dry bottom without any distinction or separation of substances, it is a specifical Spirit against Cephalick and Uterine Diseases; being mixt in Julaps or Apozem's to a pleasant acidity, or us'd in the ordinary drink of the Patient. As concerning the *Crocus*, it is an infallible Remedy to stop the Blood, and to dry and cicatrize Wounds and Ulcers. It is moreover a Specifick internally applyed in Opiates, and externally by Injection, for the cure of Gonorrhæa's and heat of Urine. It is also an excellent Remedy against immoderate loosnesse of the belly, Dysentery, Lientery, spitting of blood, if it be exhibited from *gr.* iiij. to xv. or xx. in Conserve of Roses, the Patient being purg'd beforehand with a good Tincture of Rhubarb, prepared with water of juice of Chicory or Endive; it is also with this Vitriol that the true sympathetical Powder is prepared, which is capable to cure sundry Wounds without applying any other apparel then a meer Filter dipt in common water; provided, the dresser hath some of the blood or goare of the Patient, and that the Linnen into which it is received be put in a very close Box, where some of this Vitriol be put also, gently dryed in warm ayr, or in a place which is fit insensibly to deprive it of its phlegm, and reduce it of it self into powder; It stops also all kinds of Hemorrhagy's, if the same order and method is observed with them as in the cure of Wounds.

Some Authors are also of opinion that this Vitriol may be sublimated with Armoniack salt, to reduce it in fluid Mercury, and

and then concocted and precipitated without addition, to prepare a Specifick and altogether extraordinary Remedy therewith for the Pox or Neapolitan Disease and all its dependencies. They that will make tryal thereof shall finde the Processes and method of working in Authors which have treated of it; it sufficeth us to have insinuated the manner of the best operation upon Copper, being certain that he that can perform what we have taught, shall never fail to bring to passe such other operations as he shall undertake upon this Metal.

Of Lead and its Chymical Preparation.

WE E are now come to the third and last Classis or form of Metals, containing the less noble and softer, which are Lead or ♄ *Saturn*, and Tin or ♃ *Jupiter*. We will speak first of the Lead, because all the operations performed upon Lead may be a Rule for those upon Tin; for the same Menstruum is made use of, and the same manner of operation is required in both.

Lead is the vilest and most abject of all Metals, consisting of an indigested Sulphur, an aluminous salt more then vitriolick, and a Mercury coming very near the nature of Antimony. It is called *Saturn*, by reason of the sympathy it hath with that Celestial Planet, as also its relation to the Spleen, which is called *the Saturn of the Microcosm*, to which it is dedicated. Lead is generally astringent, cooling and thickening, *&c.* It restores flesh about Wounds and Ulcers, and cicatrizeth them; it cools the Venerean heats, and quenches amorous fires, appeases the pains and heat of Ulcers, and dissolves Tumors occasioned by serosities lurking between the skin and the body. But all this is nothing in respect of the vertues it is endowed with, when it is well and artificially opened and prepared by the operations of Chymistry, as it will appear hereunder.

General

General preparations to open Lead.

AS we have ſtill begun by the purification of Mixts upon which our work was intended, ſo muſt we more particularly take care of the purgation of Lead, ſince it is the courſeſt and impureſt of Metals; wherefore, when Artiſts will employ it in any Operations, they muſt before all things meſt it in an Iron pot, and when it is in full fuſion, throw upon it by intervals ſmall pieces of Wax, which inſenſibly will waſte away, and when he ſeeth the Lead bright and with a fair aſpect, and to be very clear under the uppermoſt or ſpecifical skim, let him remove the ſaid skim, and throw it in clean water, to put afterwards to ſuch uſes as he intends.

This Lead ſo purified muſt be reduced into calx, if you intend to extract the vertue of it; for though this Metal be ſoft and of eaſie fuſion, yet muſt it be calcined to be opened, not only to advance the operation of ſuch Menſtruums as ſhall be made uſe of, but alſo that the extracted ſubſtance may be ſo much more efficacious and full of vertue. This Calcination is perform'd ſeveral wayes: for there is an incineration, which reduces Lead to gray aſhes or calx, which is brought to paſſe only by ſtirring melted Lead in an earthen pot made red hot in the fire. There is moreover a Reverberatory Calcination, when this firſt Calx is reverberated in a Reverberatory Furnace with flaming fire, ſo ordered nevertheleſſe that it ſhould not melt; and when the Calx hath chang'd colour and begins to grow yellow, it becomes a fit colour for Painters, which they call *Macicot*; but if it goes to the height of an Orange red, it is called *Minium* in the ſhops. The third Calcination is that which is performed in the purification of Gold and Silver by the Cupel, where the Lead which remains and flyes not away in vapours, is calcin'd and changed as into a yellow, red or white skin or froth, which is called *Lytharg*. The fourth is the Cementatory Calcination, which is performed by cutting pieees of ſheet or tally Lead, and ſtratifying them with Brimſtone, and calcining it afterwards, as we have ſhewed of Copper,

per, and when the calcined Lead is washed, dryed and reduced to powder, it is that which in shops is called *Plumbum ustum*, or burn'd and calcin'd Lead. The fifth and last calcination of Lead, is that which they call *Vaporous Calcination*, which is performed by suspending plates of Lead upon a Spirit or sharp Liquor, the vapour whereof doth by degrees calcine the Lead, and reduces it into that substance which is called *white Lead* or *Cerus*. The Artist must chuse of all these Calx's of Lead which he likes best to prepare the following Remedies: but he must not deliberate or stick at taking those which by the action of fire are more open, such as are *Minium* and *Lytharg*, since he shall much better therewith attain his desired ends. We will first teach to prepare well the Liquor and *salt* of *Saturn*, which is also called its *Sugar*, by reason of its aluminous sweetnesse, as also the *false* and *true Magistery*, the *Cremor*, butter; or *nutritum of Saturn*, the *Balsam of Saturn*, the *spirit*, *yellow and red oyle of Saturn*; all which processes and manner of working we will deliver one after the other.

To prepare the Sugar or Salt of ♄.

℞ ℔ ß. of *Minium*; and as much of *Lytharg*, reduce it to a subtile powder, and put it in a Cucurbite of stone or glasse Metal, and pour thereon very good distilled vinegar, four or five inches high, then place the Cucurbite in sand, and give a sufficient fire to cause the vinegar to boyl; but note, that you must continually stir the matter with a wooden Slice as soon as you have put in the vinegar, or otherwise it will too soon settle in the bottom of the Vessel, and grow into a hard stony and compacted masse, which cannot be well distempered afterwards, and will stop the pores of the bottom of the Vessel, which will occasion the breaking of it by the action of the heat finding the free passage stopt. These Calx's of *Saturn* must be kept boyling 8 or 10 houres, renewing still distilled warm vinegar, as the first does vapour away; then filtrate all the dissoved matter warm, and lay aside a fourth part of the filtrated liquor, which is called *liquor of ♄*. But pour the remainer in a Tin Scillet or Bason, and put in a

cold place the ſpace of 24 houres, and you ſhall finde all this liquor almoſt changed into a white chryſtalline Salt, which at firſt is ſweet in taſte, and of a vitriolick ſharpneſſe at laſt; the ſuperfluous liquor decant by inclination, and evaporate to half the conſumption, and put it alſo in Tin to ſhute into Chryſtals, thus continuing until it yields no more Chryſtals; mix the remainder with the liquor ſet apart before, if it be clean; if nor, run it through a linnen, and mix and digeſt together to unite them the better; dry afterwards between a double paper the ſalt of ♄ in a temperate heat, and keep it for uſe. If the reaſon be asked, why we cauſe the diſſolution of Lead to be put in a Tin Baſon; We anſwer, becauſe this Metal hath in it ſelf a ſharp coagulating Spirit, which cauſes all the matter which is fit to ſhute into Chryſtals in this liquor, to turn ſooner, and take body better then it would do in another Veſſel, as experience will teach thoſe that ſhall make proof thereof.

It is a very ſtrange thing that all Antient Authors, and even the moſt part of Modern, have ſo much equivocated upon the vertue of this Salt of *Saturn*; for they will have it to be cold inwardly taken, and to hinder the act of generation, and yet do attribute to the Spirit which is drawn from this ſalt by diſtillation, an active, ſubtile and penetrative vertue, which drives away by ſweats the malignancy of peſtilential and venomous Diſeaſes; and affirm moreover, that it is a ſpecifick againſt the Neapolitan Diſeaſe, which are things repugnant and diſſonant to Reaſon; but all this miſtake and confuſion proceeds only from that Antient Authors have unnanimouſly delivered, that Lead was very terreſtrious and conſequently cold; moreover, Vinegar is an Ingredient of its preparation, which is alſo cold according to their ſaying; but, both they and Modern Artiſts ſhould have conſidered that Lead is a metal that hath much Sulphur, and is called *Aurum Leproſum* leprous gold, and though very unripe and earthly, yet it is never without ſome portion in it ſelf of the two nobleſt Metals, indiviſibly mixt in the *Chaotical* (if I may ſo ſay) and undigeſted matter of Lead, which gives and communicates unto it much vertue; it muſt alſo be remembred, that the external fire imployed in the calcination of ♄, doth potently ſtir up its internal fire, which concocts and digeſts all the unripeneſſe of pre-

pretended immaturities, driving away what is there of impurity, and exalting and perfecting more and more the seeds of that purity which are enclosed in it: which makes me to pronounce boldly, that the salt of *Saturn* is a very good Medicine against all Agues, either continual or intermittent; it is also a specifick in diseases of the Spleen, and all vapours arising from it; it may also be given against diseases of the Breast, dissolved in juice of Scabious water with equal weight of purified Niter; the Chrystals are very good against Asthma's or short breath. The Dosis of salt of ♄ is from ij. to xx. *gr.* in appropriated Liquors, or in Bolus in some Conserve or Jelly. The Nitrous salt of ♄ is from iiij. *gr.* to ℈ ſ. but if the said salt is so efficacious for internal Diseases, it is no less for external; for this wonderful metallick Mummy cannot enough be esteemed, this Balsam and sweet Salt which kills all corrosive, harsh and biting salts, which cause the pains of Wounds and Ulcers, whereby the grief and inflammation of the parts is excited, and from which flow all other accidents; it resolves and mollifies hard and schirrous Tumours, takes away the ill-favour'd colour and lividity of bruises and contusions, and hinders extravasated blood from turning to corruption, and coming to suppuration; it is an imparalleld Remedy to take away the itching and inflammation of the eyes, it is mixt in all Salves, Liniments, Plaisters and Collyries, by reason of the noble effects it uses to produce.

The use of the Liquor of ♄, and how to make with it the false Magistery, Cremor, Butter and Nutritum.

WEE have said here above, that the Artist was to lay aside some part of the dissolution of the calx of Lead for his use, which is very considerable; for this Liquor may be made use of being mixt with common water, to make a Saturnine Extract, which is endowed with wonderful Vertues to resolve, dry, temper and refresh all the external parts any wise offended, dipping Fillets in it, and wrapping about the members after they have been dressed and fitted by the Chyrurgeon; it hinders all inflammations, and asswages all swellings; so that I advise the

careful Surgeon which minds the good of his wounded Patients, and his Reputation, never to be without this Liquor.

Put of this Liquor in a Dish, and pour upon it oyle of ♀ made *per deliquium*, and immediately a salt of ♄ will precipitate it self into a very white powder, which is that improperly called *the Magistery of Saturn*, being to speak properly, nothing else but a very subtile Cerus; for when the salt of the vinegar which is acid, and holds the Lead in dissolution, comes to lose this acidity wherein consists it dissolutive strength, by the action of the salt of ♀ which is lixivial, the Lead must of all necessity fall down, having nothing more to uphold it. This Precipitate must be washt to a sweetness in common water, and the last time with very good Rose water, and dryed afterwards gently; it is a very fair white for Pomatums, which may also be us'd in Salves and Collyrie's, for it is an excellent desiccative, acting gently and inoffensively.

To make the Cremor, Butter or *Nutritum of Saturn*, grind only in a Brass morter liquor of ♄ with oyle of Olives, or Roses, putting a little of each of the substances one after the other, and stirring them nimbly and strongly together, until all be united and form'd into a substance like unto Cream or butter, called *Nutritum* in the shops; if you make use of oyle of Olives, this Liniment will be very white; but if whey or oyle of Roses, it will become yellow, the acid of the liquor having in some kind resuscitated and revived the colour of the Rose, which was hidden, and as it were buried under the greeness of the oyle. It is a soveraign Remedy against breaking of the skin by bruises or otherwise, Itch, Scab, inflammations of Boils, Botches, Erisipela's; for besides that it doth dry powerfully, it deads also and mortifies the ill Ferment which is in the part, and causes all the irritations and accidents thereof; it doth wonders against burnings, and to allay the grief of hot Gouts, without giving any occasion to fear it should strike the humour in by the pretended coldness which is attributed unto it; contrariwise it may be used with confidence, since all the Remedies taken out of Lead do work by the subtilty of their parts, and resolve all superfluities; as also kill and mortifie all the acidity, malignant and preternatural acrimony which causes the tension, inflammation and grief of the parts.

To

To prepare the Right Magistery of ♄.

℞ ℥ ij. of Ceruss, and having made it into very small powder, put the same in a Matrass, pouring upon it ℥ vj. of the spirit of ☿ by little and little, and stir them together that the spirit may reach to the bottom; place the Matrass in *B. M.* and keep it there warm in digestion the space of 12 hours, then filtrate softly the dissolution, and let the filtration rest one night in a cold place, after which you will finde it coagulated into white Chrystals; separate the superfluous liquor, and draw the spirit in Balneo by distillation to a dry bottom, and you shall have in the bottom of your Vessel the Magistery of ♄ dissoluble in all kinds of Liquors, like unto the first which was in Chrystals in respect of its vertue, which you must dry in a slow heat between two papers. This Magistery may be administred in all Diseases, wherein we have said the salt of ♄ to be good and conducible, and we shall finde from it much better and quicker effects, then those we have attributed to the Salt made with vinegar; but the Dosis of it is less: for it sufficeth to give of this Magistery from ij. *gr.* to xij. Note, that the spirit of *Venus* which you have made use of in this Operation, drawn off again by distillation, is good yet for the same operation, and any other to which it might be employ'd, for it doth not lose of its action or vertue for Physical uses, nor power and efficacy for distillation and extraction of Tinctures.

To make the Balsam of ♄.

℞ ℥ ij. of good salt of ♄, in subtile and light Chrystals, and being reduced to powder, put it in a Matrass, pouring upon it ℥ iiij. of ætherial oyle of Turpentine, well distilled, which commonly is call'd *Essence*; the preparation whereof we have taught above, but not of that spurious oyle of Tar sold in Grocers shops: digest these two matters in ashes in a moderate heat, and stir them five or six times a day, untill the oyle hath contracted a very fine red colour; then add ℥ ß. of Camphire, and leave them toge-

ther:

ther in digestion 24 hours, until the Camphire be dissolved and united to this excellent Balsam, which must be filtrated in a glass Funnel through a little Cotten and kept in a Viol for use. This Balsam is endowed with very great vertues, which makes it worthy of the Closet of Chymical Artists, and the practice of the most skilful Surgeons; for it cures the most inveterate Ulcers, dissolves and resolves all swellings, revives and animates again starved members, cures green and new Wounds, and hinders bad accidents thereof, doth wonders in the cure of Fistula's, growing Cancer or Morphew; finally, it is one of the best and safest Remedies us'd at this Day by the skilfullest German Practitioners.

To prepare the Spirit, yellow and red oyle of the salt of ♄.

℞ ℔ j. of salt of ♄, very subtile and chrystalline, dissolve it seven times consecutively with the best distilled vinegar, and evaporate as many times; then put it in the Canicular or hottest dayes of the year, in a very cold Cellar to dissolve in liquor; this Liquor put in a Retort placed in a Reverberatory Furnace upon an earthen pot, cover turned upside down, having about one inch thick of sand or ashes between the bottom and Retort; fit to the neck a very capacious Recipient, the joints whereof must be luted with all possible care, and the Lute being well dryed, give fire to it with the same care, circumspection and Rules of fire, as we prescribed in the distillation of the spirit of ☿, and when you shall see heavy and red drops to fall down, and that the Recipient grows clear of it self, cease the fire; there is ordinarily 20 or 24 houres required for this operation. That which after distillation is found in the Recipient, contains four several Liquors, *viz.* a volatile and subtile Spirit, a yellow Oyle, a Phlegm, and a red Oyle; make the rectification and separation thereof in a Retort very clean, in *B. M.* or ashes; then change the Recipient to separate the said Liquors, according to the following Notes and Direction. The volatile and ætherial spirit passeth through the neck of the Retort, without framing any veines therein; the yellow oyle follows after, which frames oblique and winding veines,

veines; wherefore as soon as this sign doth appear, the Recipient must be changed. The phlegm follows after the yellow oyle, in straight and direct veines, and the red and slow oyle remaines in the bottom of the Retort.

The volatile spirit of ♄ is a wonderful Sudorifick; wherefore it is excellent against the Plague, Madness, Palsie, Epilepsie and remainders of Apoplexy, afflicting the body or mind, and sometimes both, as also in malignant and burning Feavers and Pox; the Dosis must be from iiij. drops to xx. in Decoctions, or waters appropriated to the nature of the Disease.

Digest the yellow oyle upon calx of Gold well opened, or upon Crocus of ☉ in a slow heat of the vaporous Balneo, in a circulatory Vessel Hermetically sealed, and it will become as red as blood. It is a great Arcanum or secret Remedy against all griefs of the Heart and Brain, being administred from j. drop to iv. in spirit of Lillyconvally, or good Sack.

The red Oyle is a miraculous Balsam, being circulated with equal parts of oyle of Camphire and tartariz'd spirit of Wine, the space of 15 dayes, after which the spirit of Wine must be drawn again in a slow heat of Balneo, and there remains a Balsamick Essence, which cures plain Wounds from one day to another, being only slightly rub'd with a Feather dipt therein. It may be made use of in the cure of all the same Diseases, to which we have said that the Balsam of ♄ did conduce; for it is the true Balsam and Mummy impregnated with the sulphur of ♄.

Of Tin and its Chymical Preparation.

TIN is the second Metal of the last form, and one of the less noble, though it hath many good qualities, both for Physick and Metallick. It is a white and soft Metal shining with a brightness mixt with some blackish gloominess, consisting of a more pure Mercury then that of the hard Metals, but softer and more volatile; it is nevertheless more fixt then that of Lead, and hath a white undigested and unripe sulphur; this Metal hath very little of salt, which is for the most part the bond and union between the Mercury and Sulphur of Bodies, whence proceeds its porosity and

and harſhneſs. Hermetical Philoſophers call it ♃ *Jupiter*, by reaſon of its congruity with that Plant, in the great World, and the virtual ſympathy it hath by the Remedies extracted from it with the Liver and Womb, to whom it is particularly dedicated in Man the little World.

It is not neceſſary for us here to repeat unneceſſarily the manner of extracting the ſalt, and making the falſe and true Magiſtery of ♃ *Jupiter*, ſince it is the ſame way we have taught upon ♄. We are only to give notice, that the calx of ♃ muſt be Reverberated, taking it as it is already prepared for Potters to uſe, and that the ſpace of two dayes, whereby to open it as it is fitting; otherwiſe very little ſalt will come of it. The Salt and true Magiſtery are ſpecifical Remedies and ſingular againſt ſuffocations and fits of the Mother, which are wonderfully allayd by it, whether adminiſtred inwardly, or outwardly applyed. They are alſo admirable Topicals for the cure of putrid, ſtinking, hollow, fiſtulous and cancerous Ulcers, and againſt Wolves. The Doſis inwardly taken is from ȝ. *gr.* to ʒj. in Bolus, in ſome Conſerve of Balme, or Flowers of Peny-Royal, the ſpirit of Elder-berries, or ſpirit of Karabe or yellow Amber. But let the Artiſt be very wary, in purging thoſe Women that have made uſe of this Remedy, with ſome gentle and convenient Purgation which irritates not the Womb; otherwiſe he muſt begin a new. Wherefore let him have a ſpecial care, not to ſtir the ſeroſity of this dangerous Animal, after it is once quieted and laid aſleep by the eradiating vertue of the metallick or mineral Sulphurs; and as he knows and is ſufficiently inſtructed, that the Anodyne vertue proceeds from this (Mineral) Family, let him make uſe of purgative Remedies, and thoſe Diuretical, *&c.* Diaphoretical preparations which it doth ſo plentifully yield, and that have neither ſmell nor taſte, that can irritate and provoke afreſh this delicate and tickliſh part.

The distillation of Tin, yielding several noble Remedies, both against internal and external Diseases.

WEE are engaged to give here the manner of an operation upon ♃, which contains several very useful Remedies, and very considerable observations, whether in respect of the work, or of the matters which are made use of, and whereby the Artist may be taught to penetrate further into the knowledge of several other and better things, whilest he is in the way towards this.

℞ ℥ iiij. of very small filed Tin, and being mixt in a Marble mortar with ℥ xij. of corrosive sublimate Mercury, put this powder in a Retort with a very large neck, and having placed it in sand, about half an inch thick upon the bottom of the Dish that contains it, give it a convenient fire, and you shall first draw a Spirit continually smoaking; then afterwards it will yield a Butter, or a kind of corrosive Icy Oyle. And in the third place, the Mercury will be revivifyed or quickened again abundantly, being no longer stayd or coagulated by the spirits of those salts which have forsaken it, to work upon the body of the Tin; this done, encrease the fire downwards, and give it a fire of suppression, and all the substance of ♃ will ascend in the neck of the Retort, under the form of a gray Gum very hard, so that in the bottom will remain very few red feces; reduce immediately this Gum into powder, otherwise it would quickly grow moist in the ayr, and put it in a Cellar upon a sheet of white Lattin, being edged about, and a small gutter or mouth, by which the moistnesse and coolnesse of the Cellar having reduced it into a yellow Oyle, it may run and be received in a Dish of glass or stone metal, fitted under the same to be as a Recipient. This Oyle in Chyrurgery is an admirable Medicine to eat up proud flesh, and the hard or thick skin of Ulcers; but the Surgeon must handle it with dexterity and judgement; for it must only be applyed with a Pencil very gently, by reason of its penetrating subtility, though it be not so corrosive as the Butter which comes forth after the Spirit; and is a true Caustick that must also be us'd with discretion, when ap-

plyed to hinder the progrefs of ſome dangerous gangrening, and to make Iſſues or ſudden Cauteries; as likewiſe to accelerate the exfoliation of Bones, and the ſeparation of rotten parts and the Exoſtoſes cauſed by Nodus's in the Pox. But there may be an excellent *jovial Diaphoretical* made out of this oyle or Butter, diſſolving it with diſtilled Rain-water; for as you ſhall be ſtirring, and the water ſhall diſſolve the Salts of the corroſive Sublimate which kept the Tin in diſſolution, it will immediately fall and precipitate it ſelf in a white powder in the bottom of the Veſſel, which muſt be dryed and edulcorated, and you ſhall have in it no deſpicable Diaphoretick; which may be adminiſtred from ij. *gr.* to viij. in Conſerves, Confections or Preſerves, or in appropriated Waters or Spirits, for ſuch as are troubled with ſuperfluous ſerofities, and chiefly in accidents and caſes of the great Pox; as likewiſe moſt ſpecially for Women troubled with ſlackneſs or too much moiſtneſs of the Womb. And as we have often ſaid, that the Chymical Artiſt muſt be cautious not to loſe or waſte any of the ſubſtances he prepares; but contrariwiſe, muſt know them throughly as much as it is poſſible, to be capable to employ them uſefully according to the vertue which is in them; he muſt take that red matter, which after diſtillation is found in the bottom of the Retort, and join it with what remains after the reſolution of the Gum in a Cellar upon a leaf or plate of white Latin, which are nothing elſe but the ſulphur and ſalt of the Mercury and Tin; the ſeparation whereof he is to make by the help of diſtilled Rain-water, which diſſolving the ſalt, the ſulphur ſinks downward, the liquor whereof is to be ſeparated, filtrated and evaporated in ſalt, which diſſolve again, filtrate and coagulate, and thus continue until it be clear, fair and green as an Emerald; as for the Sulphur, it muſt be edulcorated, dryed gently, and kept for uſe. The Salt is diuretical and aperitive, and is adminiſtred from *j. gr.* to iiij. in Broth or white Wine, to cleanſe the Womb and thoſe parts which have any relation to it. The Sulphur is a good Sudorifick and Anodyne. The Doſis from *j. gr.* or ℈. to *gr.* iij. in Emulſions made with the ſeeds of Lemon, *Carduus Benedictus* or holy Thiſtle, and white Poppy with Cordial Waters; it is a ſpecifick Remedy for Women troubled with diſeaſes of the Mother; the Spirit alwayes ſeem-

steeming, which was the first drawn, is also a very strange substance; for besides that it will not be kept in by any Vessel, without yielding continually white vapours, and without any sensible diminution of its weight or vertue; it is so active, subtile and penetrating, that it stops and puts at a stand, not only Gangrenes and Wolves, the offending parts being only rub'd with it, but even can hinder the progresse and running of the Sphacelus which is a rottennesse of the bones; in which Cure, it goes even beyond the water of Quick-lime, whereof we have spoken, and taught the making above. Besides all what we have said, there is a Noble Preparation yet to be made with this Spirit; which is, to take as much as you will of it, and put it in a Matrass broad at the neck, and softly by little and little and by intervals pour upon it Tincture of salt ☿, immediately will rise a fermentation with several bubbles, which break with some kind of noise and smoak or steem; you must go on in pouring of this Tincture till the noise and bubbles do cease; place afterwards the Vessel in warm ashes, and the matter will turn into a coagulated substance black as pitch, to which giving a fire of sublimation, you shall have white Chrystals melting as Wax, which are a very good cure of scrophulous and cancerous Ulcers, as also any ill remainders of the Pox, because they cauterize almost without pain to the very bottom of the Ulcers, and cause the separation of dead flesh or scarre, leaving the Ulcer without malignity, which must afterwards be filled with the Balsam of Sulphur, and the *Plaister of Rullandus* called *Diasulphuris*. With this we put an end to Metals, to come to Minerals which are next kin to them.

Section IV.

Of half or semi Metals, and middle or mean Minerals, which come the nearest to the nature of Metals.

WEE bring in this Section those substances which follow more immediately, and have a greater affinity and correspondency with Metals, which some call *semi-Metals*, *middle-Minerals*, and sometimes also *Marcassites*; but this last appellation is only proper to Antimony, and not to Quick-silver; but the Quick-silver and Antimony are the matter and subject of this Section; for we will not speak of *Mineral Cinnabar* by it self on purpose, since we are to mention it when we come hereafter to treat of *Cinnabar* or Artificial Vermilion, which is a sublimation of Mercury and Sulphur, or Brimstone and Quick-silver.

Of Quick-silver or Mercury, and its Chymical Preparation.

MERCURY is a mineral volatile Liquor, which greedily sticks to Metals, and above all to Gold. It is also called *Quick-silver*, and sometimes found running and pure in Mines, but very seldom; for it is for the most part drawn by Revivification from a mineral Earth, vulgarly called *Cinnabar*. The choice of it is much to be heeded, because it is not equally good, but accordingly proves more or less useful in Chymical Operations; for Mercury may hold something of the foulness and impurity of his Matrix, which is the place of its formation and original, either by reason of the earthly Recrements and other filth which do pollute and defile it, or by reason of some impure mixture, or amalgamation and sophisticating of the Merchants who use to sell it.

As for the choice to be made of it by reason of its original, that which grows near Mines of the most pure and noble Metals, and

and chiefly those of Gold, is to be preferred; wherefore that which comes from *Spain* and from the Mines of *Hungary*, is ever to be chosen before any other. The matters which naturally corrupt and deprave Mercury, are Arsenick, Antimony, Lead and Cadmia; but there is besides an artificial Sophistication, very hard to be discovered and discerned, either by sight or weight; for it is mixt with some part of Lead or Bismuthum, squeezed through Leather, so as nothing remains behind; yet this Cheat may be discovered and found out two several wayes: the first by distilling it in a Retort; for if no dregs or impurity remains in the bottom of it, it is a sign that the Quick-silver is pure; the second is by evaporating of it in a silver Spoon in open fire; for if the Mercury leaves only a yellowish or white spot, it is a sign of its purity; but if it leaves a brown, black or obscure, it is a sign of its foulness, and of being sophisticated. There are yet nevertheless some other wayes of depurating it wholly, which we will place amongst the preparations of Mercury.

The general vertues of it cannot very well be described, having not yet been sufficiently tryed; for it may be said with truth, that they never were yet discovered by any to the bottom: thus much nevertheless may be said, that Mercury is an internal cleanser or Mundificative of the whole masse of the blood, and that it expels from it whatsoever the depravation of digestion and evil fermentation may have contracted and mixed in it of dangerous and hurtful humours; but particularly it cleanseth the body from the venomous infection of the Pox; kills and expels worms, advances and hastens difficult birth; but in outward applications cures all manner of Scabs and Itch, destroyes all manner of Vermin, and dissolves hard swellings and Tumors; hung to the neck, it is a preservative from Plague; and some are even of opinion that it may hinder Witchcraft, Charms and Incantations; finally, it may be said with much reason, that except it be Antimony, there is no substance under the Sun of so general a vertue, nor yielding so many different Remedies against all Diseases; for it supplyes us with Vomitives, Purgatives, Diaphoreticks, Lenitives, as it will appear when we come to particularize the several descriptions, and the several processes and Operations incident to the preparation thereof. But we must ad-

advertise our Artist, that Quick-silver is called ☿ *Mercury*, by reason of the correspondence which is between that Planet and this semi-Metal; and that as *Mercury* is an inconstant and changing Planet, so likewise this Mineral makes himself all to all, hot with the hot, cold with the cold substances, and so of the rest. Some give it the Rule of, and place it over the Lungs; and others subject unto it the inferiour Ventricle, as also the uppermost or whole belly: but I hold of a more universal Opinion, and say, that I believe Mercury universally to work upon all man's body, and to drive away generally all Diseases and griefs from it, of what nature soever; since we see that Remedies taken from Mercury are a cure of Leprosie and Pox, which are diseases and a corruption of the whole substance. I leave nevertheless those that will dissent from me, in the freedom of their Judgement.

The general preparations made upon Mercury, are; Purification, Calcination, Precipitation, Sublimation, Distillation, Extraction, Liquation, Resolution into Liquor, and Salification. We will give some Examples of the Work which all these general Operations do require, that they may be a Model and Introduction to the Artist, to possesse the whole Harvest of Remedies, which Mercury will yield to such as will take the pains to examine and anatomize it; for as it is a *Protens* which takes all sorts of forms, and changes himself into all manner of colours, it would never be done, if we would heap here all the observations, and relate all the particulars, which both by reading and our practice we have discovered in the Nature of this Mineral.

The purification of Mercury.

WEE shall not spend time here in making a long description of all the Lotions, Frixions and Agitations, with which some have pretended to cleanse and purifie Mercury of its natural impurities, and the spots of sophistication, because they are not the right meanes to deprive it of its filth and foulnesse; it will suffice only if we shew the manner of Revivifying and Extracting it from artificial *Cinnabar* by the help of Filings

lings of Iron, since it is the surest way for obtaining very pure and clean Mercury to use afterwards towards all such preparations as the Artist will take in hand.

The Revivification of Cinnabar *into flowing Mercury.*

℞ ℔ j. of Vermilion or artificial *Cinnabar*, which is nothing else but sublimated Quick-silver with Brimstone; bray it in a Marble Mortar with a Wooden or glass Pestle, and mix it with equal weight of Filings of Iron; this mixture put in a small Retort, so as to be filled to an inch near the top of it, then place the Retort upon a broken brick with a little of Lute under, and fit the neck thereof to a Recipient half full of water, lute it, and having put bricks round about the Retort four fingers distant from it, fill up the space between with black Charcoals two inches high, then mix kindled coals with it in four several places equally distant, and cover the remainder of the Retort of black coales also up to the top; and so suffer the fire to kindle slowly of it self, that the Retort may insensibly grow hot and by degrees, and all your *Cinnabar* will come over the helm in flowing Mercury, either shaped in vapors or in body into the Recipient, leaving only behind the Brimstone which had been sublimated with it when the *Cinnabar* was made, which here cleaves to the Iron remaining half calcined and half opened in the Retort, and is then very fit to make the aperitive or astringent Crocus therewith, that nothing may be lost. This done, unlute the Recipient, throw away the water, and dry the Mercury, running or squeezing it often through a white and dry linnen cloth; then run it also three or four times through Chamoy leather, and keep it in a Viol to use in all operations, as a very clean and pure Mercury; for besides that it hath already been purified by the first operation, which was its sublimation with Brimstone, the manner whereof we shall teach hereafter; this Revivification doth yet cleanse and purifie much better, because the Iron doth greedily draw the Brimstone to it self, and keeps also whatsoever impurity might have risen with it in the former sublimation.

The

The Calcination and Precipitation of Mercury.

THough commonly the Calcination of Mercury be called *Precipitation*, it is nevertheleſs a very improper Expreſſion; for nothing can be ſaid to be precipitated that has not before been diſſolved, and doth return to a body by the infuſion and injection of ſome ſalt or Spirit, and then the Diſſolvent leaving that which it had diſſolved, it falls and precipitates it ſelf in the bottom of the Veſſel; but uſe having prevailed to call Mercury *concocted, digeſted and calcined, a Precipitate*, we will keep this appellation which is found in all Authors. This Precipitate is made with Mercury alone, or with ſome addition of either of the two Luminaries, or of both together, which are *Sol* and *Luna*, Gold or Silver; we ſhall exemplifie it here; as alſo ſhew the method of ſome other Precipitates which are made after diſſolution in ſome convenient Menſtruum.

To make the Precipitate of Mercury without addition.

℞ A double Veſſel called *Infernus*, a Hell by Artiſts, flat and broad in the bottom, and throw in it ij. iij. or iiij. ℥ of Mercury, purified and cleanſed in the manner by us delivered above; ſtop the upper part of it with a ſingle paper, and place it in ſand very equally in its poiſe or Equilibrium, ſo as the Mercury may be evenly ſpread upon the whole ſurface of the bottom of the Veſſel, lying no thicker in one part then in the other, that the fire might equally work upon the whole ſubſtance of the Mercury at the ſame time. Begin your fire at firſt ſlowly, and encreaſe by degrees until the whole Mercury be changed, calcined or precipitated into a red powder as mineral *Cinnabar*, very bright, ſhining and ſparkling to the eye. Digeſt it the ſpace of three weeks with alkohol of Wine, and kindle it ſeven times over, by which the concoction and fixation of it will be perfected; it is an univerſal Mercurial Remedy againſt all Agues, but particularly a true Specifick againſt the Pox

which

which it radically cures, if it be administred seven times to the Patient to provoke sweating, for it is an infallible Sudorifick; it kills also the wormes in the stomach, and those which are generated in the Guts and Intestines. The Dosis must be from ij. *gr.* to viij. in some Conserve, Confection or Cordial Extract; the Patient must keep his bed when he uses it, and must take care of being well covered, expecting patiently till the sweating comes, which will not fail to bring along with it the hoped for and desired success. But the Artist must not grow faint and weary in this operation though it be long and tedious; he must besides take care to rule the fire with judgment and discretion; otherwise he will be put often to begin anew, because if there be any fault in ordering well the fire, the Vessel will break. This Operation is slow and tedious by reason of its length, for it cannot be perfected under six weeks, yea two, three or four months, according as the Artist shall take care to prepare ill or well his Mercury, and govern well his fire with care and assiduity.

To make the Solar or Lunar Precipitate.

THere is no need here to repeat any thing of the manner of the Vessel: we only advise our Artist to note that he may make this operation, as also the foregoing in a plain Matrass, without making use of a Hell: for that kind of Vessel being rare, it would put a needless difficulty and rub upon the Work; Yet let the Matrass however be flat and plain in the bottom, and stopt in the mouth only with a wooden pin which may easily be taken away, to throw down again the Mercury which may have raised its self by sublimating into the neck of the Vessel. We have no more to do here then to add the Doses of the Metals which are intended to be added to the Mercury, to communicate unto it some other vertue then that it hath already from it self: for as we have said, there may be gold or silver added, or both together. If it be gold alone, after it hath been three times purg'd by Antimony, it must be made into an Amalgam with viij. p. of Mercury purified, and this Amalgam put in the Vessel and there con-

coćted, as hath been ſaid above. If it be ſilver, it may be mixed ij. p. upon viij. but let it be very pure ſilver of Capel made in leaves or very ſubtile calx, that it may be the better amalgamed and incorporated with the Mercury, and then concoć it in the Veſſel, as hath been ſaid; and if the Artiſt hath any deſire to communicate to the Mercury the properties of both Luminaries, he ſhall make his Amalgam with i. p. of gold, and ij. p. of ſilver, melted with vj. p. of very pure and clean Regulus of Antimony, with vij. p. of purified Meerury, to be concoćted according to Art. The Solar Precipirate is given from j. *gr.* to vj. in the ſame Vehicles and Ingredients we have already ſaid, and for the ſame Diſeaſes, except that it hath this vertue more, to be ſpecificated for ſtrengthening and corroborating the Heart, and to drive away all weakneſſes and griefs from it. The Lunar Precipitate is alſo as it were ſpecificated, and deſtinated to the Head, beſides the general vertues it hath of it ſelf; But neither of them are to be compared in ſtrength or vertue to the laſt, which receives a mixture of Gold, Silver, Antomony and Mercury; for it is an univerſal Remedy and a kind of true Panacea: inſomuch, that one of the moſt learned and moſt renowned amongſt Chymical Authors, doth not think amiſſe to give it the name of *Phyſical Gold*, or *Medicorum aurum*, and *the comfort of Patients*. The Doſis of the Lunar Precipitate is from j. *gr.* to xij. They that will make uſe of it alſo for a Preventive of Diſeaſes, when they finde themſelves loaded and filled with impure ſeroſities, proceeding from ſuperfluities of digeſtion, may take vj. *gr.* thereof faſting, and keep themſelves well covered to expeć ſweat; and then after having taken a good Broth or Bisket dipt in Wine, ſhall cauſe their ſweat to be well wiped off, keeping their Chamber for that whole day; after which they will finde themſelves ſo altered and ſo much lighter, that they may be half better diſpoſed for all functions. This much we had to ſay concerning theſe Precipitates without addition of Salts and Spirits: but as their preparation is long and tedious, and that all Artiſts are not capable or fitted for theſe high Operations, it is neceſſary we ſhould give a deſcription of ſome other Precipitates of Mercury, which may be made in leſſe time, and never fail. It is true, that their vertue is neither ſo great, nor ſo extenſive; they may

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in a manner be substituted to the foregoing, provided their Dosis be regulated with more circumspection, and the use thereof duplicated and more often reiterated.

To make a very excellent fix Precipitate.

℞ ℥iij. of purified Mercury, ℥ij. of yellow Brimstone, ℥j. ß. of Armoniack salt very pure: mix and pound all in a Marble mortar so long that none of the Mercury will more appear, though being rub'd on the palm of the hand; this mixture put in a Viol or Matrass in sand and give it a sublimatory fire; the sublimation being ended break the Vessel, and separate cleanly the sublimed matter, and pound it again, and mix with the matter left in the bottom of the Vessel; then begin to sublimate again, and thus do four times: but at the fourth time, give it a good fire towards the end, until the bottom of the Matrass or Viol growes red hot; wherefore the Artist must leave less sand in the bottom of the pan then at other times; the matter being cooled, keep that you shall finde in the bottom of the Vessel, and preserve it as a very good Medicament, having the vertue to expel from the body sound or sick, all what may be noxious to it, by sensible or insensible transpiration: it is given fron four *gr.* to twenty in Treacle, or extract of Juniper berries.

To make the Precipitate called Arcanum Corallinum.

℞ ℥iij. of purified Mercury, and having put it in a Matrass, pour upon it ℥iiij. ℈. of spirit of Niter, and therein dissolve it in a slow heat of ashes, and being all dissolved, put the Vessel in sand under a Chimney; but let the neck of the Matrass be short, and cut away to facilitate the vapouring of the spirit; give it a gradual fire until the Mercury be dry, then cease the fire, and let the Matrass grow cold; if it be shiver'd or broken, draw the masse in it again and bray it in a Marble mortar; then pour the powder in a new Matrass: but if the first be yet whole, you may use it to go on in your operation; for you have no more

to do, then to pour again as much ſpirit of Niter as before in one of the ſaid Veſſels, and put it in aſhes to digeſt until the maſſe or powder be diſſolved; then place it again in ſand, and evaporate the ſpirit of Niter to a dry bottom; this done, begin again for the third time with as much ſpirit of Niter, and place the Veſſel in ſand after diſſolution; and when you perceive all the ſpirit to be vapoured away, encreaſe the fire, and go on until you finde the Mercury to be changed into a red powder; but if you will be more ſecure of your work, bray the maſſe you ſhall finde in the Matraſs after the evaporating of the ſpirit of Niter in a Marble mortar, and put the powder in a Crucible, which by degrees you ſhall bring to be red hot in an open fire, and when you ſee your powder of a fine red coralline colour, and inſipid or taſteleſſe, then take off the Crucible from the fire, and let the powder cool, which afterwards put in a Marble mortar, and moiſten it with alkoholiz'd ſpirit of Wine, poured on it till it ſwims over half a finger high; then giving fire to it, exhale it to a dry bottom, thus continuing and repeating ſeven times, and then may you be ſure to have a purgative Precipitate capable of working many noble effects, and without any corroſion. The Doſis muſt be from ij. *gr.* to x. in purgative Extracts, or a little of the maſſe of Angelick Pills. It is a real and true Arcanum againſt the Pox and all its dependances and evil ſymptomes: for it equally and univerſally purges away all what is hurtful & ſuperfluous; wherefore it is good againſt Dropſie, Gour, venomous Plague, Agues, and to reſolve Fluxions and Catarrhs: As for outward applications, no Remedy ſurpaſſes it for the cure of malignant and corroſive Ulcers; it is alſo very good againſt Itch, Scabs and all eruptions in the skin, if ℥ j. or ℈ ij. be mixed in Pomatum, and the pulſes in the Head, Wriſt and Feet be rubbed or anointed therewith.

We ſhall not loſe time here in deſcribing the ſeveral white, red, ſcarlet, yellow, green Precipitates, and of ſeveral other colours which are made with ſpirit of Niter, *aqua Regalis*, *aqua fortis*, ſpirit of Salt and other Reſolvers, and precipitated with ſpirit of Salt, Sea-water, ſpirit of Urine, Urine, Tincture of *Smiris* or *Emrill* ſtone and many other ſubſtances, becauſe ſuch operations are of little Art, and require little of obſervation: wherefore we refer the Artiſt to his own already acquired experience

ence, or the reading of such Authors as have fully treated of Mercury, being contented to have taught what is noblest and most worthy of observation in the preparation of Precipitates.

The sublimation of Mercury.

THis word *Sublimation* may generally be taken for all kind of Distillation, since it denotes and signifies nothing else but the raising up of vapours and exhalations of the matters upward: but here it is taken in somewhat a stricter sense; for it signifies nothing else but the raising or lifting up of the Body of Mercury into vapors or exhalations, which are thickned and condensated upwards in a hard and compact body, sticking to the sides of the Vessels in which the Mercury is put after it is dissolved, mixt, or as it were united with Salts, Spirits of Brimstone; we will give some few examples of this Work, that our Artist may punctually and knowingly put it in practice with all requisite and due observations.

To make the Corrosive Sublimate.

℞ ℔ ʃ. of purified Mercury, dissolve it in a Matrass with ʒ iiij. of good *aqua fortis*, then put it in sand, and softly evaporate away the *aqua fortis* to a dry bottom; then cease the fire, and breaking the Vessels after they be cold, weigh the masse, and having bray'd it in a Marble mortar with an equal weight of Vitriol, calcined to whiteneſse, and as much deſiccated salt, put the mixture in a Cucurbite or Matrass, or between two earthen pots, and place either of these which you will use in sand near the bottom plate; if it be a Cucurbite, let it be low and cover it with its Head; if a Matrass, stop it with paper only; and if two earthen pots, let the uppermost which is turned the bottom upwards, have a hole in the middle of it, to evaporate the moisture of the Salts, and when you see white and dry vapours come away through the same, stop it also with paper: give it a sublimatory fire by degrees, until all the substance of the Mercury be ascended, which will coagulate into a chrystalline matter to the top of the

the Veſſels, containing in it ſelf many of the corroſive ſpirits of the ſalts you haue made uſe of; if you will have a very pure and very corroſive Sublimate, bray that which is ſublimated with ℥ xij. more of deſiccated ſalt, and ℥ iiij. of Vitriol calcined to redneſs, and ſublime it for the ſecond time, and continue to the third with as much deſiccated ſalt without addition of Vitriol; and for the laſt, bray it alone again and ſublimate in ſand in a Viol or Matraſs, and ſo ſhall you have a ſublimate Corroſive Mercury very pure, and fit not only to prepare with it the ſublimated ſweat Mercury, but to ſerve alſo for many noble Chymical Preparations; the true Artiſt muſt have a care to prepare himſelf the corroſive ſublimate which he intends to uſe, not truſting to that which is ſold at the Grocers, which hath yet too much of impurity, and is ſometimes mixt with Arſenical ſubſtances, becauſe they are cheap in thoſe places where thoſe ſublimates are wont to be prepared in quantity: yet nevertheleſſe there are marks to know and chuſe the ſame, which are a ſtinking arſenical ſmell, cleaving ſtrongly to the fingers if you do but touch it, and moreover, the revivification of it; But it is as ſoon done to prepare it your ſelf, to avoid all ſuſpition; wherefore my advice to the Artiſt is, not to truſt at all to that which is bought.

To prepare the Mercury dulcis, or ſweet Sublimate.

BEfore we deliver any thing of the manner of the work of this Operation, we muſt as much as lyes in our power, give to underſtand how the ſweetening of Corroſives is made, that the Artiſt may the better ratiocinate upon his own work, and ſo avoid all error, or at leaſt know when he commits any, how to ſatisfie himſelf and others in the reaſon thereof. To this end he muſt conſider, that what cauſes the Mercury to become corroſive, which of his nature is not, are the ſpirits of Salt, Vitriol and Niter, employed for the mortification and ſublimation of the ſame: Now as long as thoſe ſpirits remain united to the ſubſtance of the Mercury, they are capable and in power to act by reaſon of their acrimony; but if any thing is offered to corrode and work upon them which doth glut and enervate the ſame, then they

they lose that great activity they had, and leave the Mercury insipid, as it was before these spirits were united to it. This evidently appears by the revivification of a corrosive Sublimate, with quick-lime and salt ♀. for these salts which are Alkaly's do kill and alter the nature of the other salts which are acid, sharp and corrosive, and so these spirits not being able longer to detain the Mercury, it is raised by the action of fire, and returns to its first nature of flowing and insipid quick-silver in the Recipient: But it is otherwise in sublimation: for the acrimony of these spiritualized and recorporified salts with Mercury, spend most part of the extent of their activity upon the quick Mercury, which is added to the corrosive sublimate; for they work upon to mortifie and dead it, but in so doing they dead themselves; and if any portion be yet left behind, the fire doth make an end of driving it away by its action, during the three sublimations which commonly are made use of for the sweetening of it totally, and it is thus performed.

℞ ℥ xij. of a corrosive sublimate, bray it in a Marble mortar, and when it is turn'd to powder, add to it by little and little ℥ viij. of purified Mercury; stir and triturate these together until the Mercury be so deaded and mortified, that no living atome of it more doth appear; put the powder in a Viol or Matrasse in sand, with a thumbs thickness of sand only under the Vessel, and give it a gradual fire the space of ten hours, or until the Artist sees that the Mercury is wholly ascended and sublimated in the top of the Vessel; then ceasing the fire let your Vessel cool, and break it, to take the Mercury which you shall finde sublimated in a compacted and close chrystalline substance, that hath almost already lost its corrosive faculty, for the reasons before alledged. Bray it and sublimate again for the second time; and thus continue a third, and then shall you have that they call *Mercurius dulcis*, or *sweet Mercury*, *sweet Sublimate*, *the sweet and mitigated Eagle*, *the tamed Dragon*, which is that famous *Panchymagog of Quercetanus*; to be short, it is so known a Remedy, that it is vain to say it is good against all Venereal Diseases, and safely given to kill wormes in small Children: The Dosis is from *gr.* iiij. to ℥ ß. without any danger but of provoking salivation, which it doth easily: but in case it be mixt with Purgatives, as Electuaries,

aries, Gellies or Extracts, and the Patient doth take a clear Broth, or a glass of Ptisan after he hath swallowed it, he needs not be any more in fear of this great accident. But the Artist must note, that neither Mercury, nor any of its preparations ought to be brayed in mortars, or with pestles of mettal, because it easily sticks too and incorporates with mettals. The Opiates or Electuaries also wherein is put the Mercury, must not be chewed; but they must be swallowed in Bolus with wafel Bread, or some Conserve of Sweet-meats, that none may remain in the mouth or throat, because it is the occasional cause of Salivation; it is also for the same reason that Mercurial Remedies ought not to be dissolved nor mingled with Liquors to give the Patients to drink, because by reason of their weight they ordinarily remain in the bottom of the Cup, or their substance sticks and cleaves to the mouth, throat or along the gullet, and so causes salivation.

To sublimate Cinnabar, or Vermilion.

WEE have deferred above to speak of mineral Cinnabar, with a purpose to mention it in this place: and to satisfie the Artificers mind upon this subject, he must know that mineral Cinnabar is nothing else then Mercury or Quick-silver, raised and sublimated by internal heat of the Earth in mines, which made a portion of mineral and embryonated Sulphur, predominant in the same mine to ascend with it: and according to the purity of the earth, stone, sand or place where this mercury and sulphur are sublimated and coagulated into Cinnabar; this mixt is also more or lesse pure, as it appears by the mineral Cinnabar of *Corinthia*, which is much purer, and abounds much more in Quick-silver then that of *Hungary*, which is much earthlier, and hath more of stones and sands then of mercury and sulphur, and the mercury which may be extracted out of this Cinnabar, is not much purer then that which may be extracted from artificial Cinnabar, unless out of this respect, that it proceeds from places which abound with golden Mines: but if our Artist can recover none, let him not be put to a stand therefore, provided he takes care to purifie it well; and the first purification is made by sub-

sublimation with common sulphur or Brimstone, in this manner.

℞ lb ß. of sulphur or Brimstone, and with a moderate fire melt it in a well glazed earthen pan, and when it is all well melted, squeeze ℥ x. of ordinary Quick-silver through a Chamoy Leather to separate the parts of it, and make as it were a very subtile Raine thereof, which immediately and suddenly mingle with a wooden pestle and incorporate to the melted Brimstone, and thus continue squeezing the mercury and agitating, until it be all swallowed by the Brimstone; which being grown cold will turn to a black masse, which bray and reduce to powder between two earthen pots, exactly luted together mouth to mouth, the uppermost having a hole in the middle of the bigneſse of a Quill; place this pot upon two bars of Iron, and give it a circular fire, beginning under the bars by degrees, and stop the upper hole of the pot with a little piece of paper, and when you perceive the exhaling vapour to begin to turn from yellow to red sticking to the paper, then stop it more exactly, and give it a good strong fire for the space of three or four hours, then cease and let the Vessels cool, and you shall finde in your pot the Mercury sublimated into a red and shining lump or masse; which is that we call *artificial Cinnabar*; which may be used for a Perfume to provoke the fluxing of the mouth, for it is not fit to be used internally; but we have described it, that the Artist may better conceive the manner and action of the sublimation made naturally in the earth, and to teach him how to work and prepare it with Sulphur, as well as with Salts.

To prepare the silvered and pearled flowers of Mercury.

ALthough this Operation be long and laborious, it deserves nevertheleſse our teaching, not only by reason of the vertue of these mercurial Flowers, but also chiefly in respect of the *modus faciendi*, which is sufficient to instruct an Artist, and lead him to that patience which is required in the preparation of those *Arcana's* which are extracted from Mercury, so often recommended by our incomparable *Paracelsus*.

To peform then this Operation, ℞ first ℔ j. of common salt, and as much Salt-peter, which being reduced to a powder, mix with ℔ vj. of common Bolus also in powder, and by little and little moisten this mixture to knead and reduce it to a masse or lump, of a fitting consistency to frame Pellets therewith, which must be very well dryed either in the Sun, or upon an Oven where bread is daily baked. Out of these must be extracted an *aqua Regalis*, after the method and way we shall teach in the Chapter of Salts. Dissolve ʒ x. of well purified Mercury in ℔ j. of this Regal water, and draw off again the two parts thereof, or three in ashes, and the Vessel being cold, take away the Limbeck or still Head, and you will finde the Mercury changed into Chrystals in the bottom of the Cucurbite, which separate from the Liquor and edulcorate; then put it in a double or digesting Vessel, and pour upon it tartarized spirit of Wine three fingers high; then luting it very exactly, put it in putrefaction in *B. M.* the space of 40 dayes, which is a Philosophical month. This time being expired, pour all what is in the Vessel into a Retort, and place it in sand; then draw off the spirit of Wine with a very slow heat, and when it is all come over the Helm, encrease the fire for four or five hours, and some part of the Mercury will sublimate it self, and the other part remain in the bottom of the Retort in the form of a red Precipitate; break the Vessel and join these two substances together, braying them in a Marble mortar, and the powder thereof put in a Matrass, pouring upon it very good distilled vinegar two fingers high; put this Matrass in digestion in *B. M.* or in sand or ashes, and give it a gradual fire 24 houres, or until the substance of this Sublimate or Precipitate be dissolved, which filtrate warm in a glass Vessel very clean, and the Menstruum will immediately grow clear, and the substance of the Mercury coagulate into Flowers, which resemble white, flat and shining silk, cotton or flakes of snow, in colour as fair-shining and well polished silver: separate these Flowers with a silver-spoon, and put them to dry upon filtrating paper fourfold doubled, without pressing or crushing them, that in drying they lose not their lustre and beauty. Continue the same dissolution with fresh Vinegar in the remaining matter, then filtrate and coagulate until it be all converted to Flowers, which are a very excellent

lent purgative Remedy against all Venereal Diseases, Wormes, intermittent Feavers, Leprosie, and all manner of Scabs and Itch; The Dosis is from ij. to viij. graines; they must be reduced to Pills with extract of Liquorish to administer so to the Patient, giving to drink over it a glass of some Decoction appropriated to the Disease, or prescribing a Broth to be taken immediately.

The distillation of Mercury.

ALmost all Authors put the distillation of Butter of Antimony in the same rank and order as that of Mercury, but with very little ground and reason: for though the corrosive Sublimate be made use of in this distillation, the butter which proceeds from it is nothing else but a dissolved and depurated Antimony by the saline Spirits, which had coagulated the Mercury into Sublimate; but that which invincibly proves and makes good this truth, is, that when Antimony is deprived of his saline spirits by affusion of water, it turns to a precipitate or powder, which is easily converted again into Regulus by fusion with a little of Tartar; and that the Sublimate also returns into quick Mercury if the butter be made with Regulus, or is sublimated into Cinnabar, if it be done with crude Antimony, because it hath yet in its self its grosse and external sulphur. But here our intention is only to treat of the distillation of Quick-silver not prepared before, or after preparation, and teach to extract from it several noble Remedies, which are used for the cure of the most stubborn, obstinate, and radicated Diseases.

The distillation of Spirit of Mercury without addition.

THis Operation is harder then the following, because the parts of the quick-silver are not discontinued in it, nor opened by the temperation or addition of salts or spirits, and moreover hath received yet no impression from their mixture, which is the cause that many do set a greater value upon this Spirit then upon

on the following, and attribute unto it more vertue and efficacy; it is thus performed.

First, You must have a Furnace on which a Crucible must be placed, so as to rise half a foot above the grate of it, upon this Crucible lute an earthen stone Cucurbite of one foot and a half high, opened in the top and bottom equally, in the bottom to receive the sides of the Crucible within, and in the top, to be fitted for a great and capacious glass still-Head, there must also be a small hole of two inches square above the side to which the Crucible is joined, having a very exact stopple fitted to it, that by the same the Mercury may be thrown into the Crucible: the joints both of the Crucible and Cucurbite where they meet in the bottom must be exactly luted, with a Lute not subject to crack, and the joints of the Cucurbite and still-Head with a bladder & whites of Eggs; this done, give your fire gently so as to heat your Vessels by degrees, and encrease it until the bottom of the Crucible be turned red; then, having at hand purified Mercury, pour about ℥ij. at every time into the Crucible, by the square hole of the Cucurbite, which stop without delay, & the Mercury will pass through the Helm in vapours, which partly will turn again into the body of flowing Mercury, and partly into a clear Liquor, but in small quantity, proceed thus pouring and putting new Mercury, until you have enough of this Spirit for your use. Note, that you may change the Recipient and substitute another in the place to take away from it the distilled Liquor, and separate the quick-silver to put in your distillation, being as good as the other that never was yet used. Rectifie this spirit in Balneo *M.* or ashes, and keep for use. It is a searcher, penetrating through all the body, and driving away all impurities from it, either by sensible or undiscernable transpiration, and chiefly by sweats. The malignant and foul Ulcers may also be washed with it, chiefly those that proceed from the venom and infection of the Pox; we shall make a more exact application of the same again, after we have delivered the description of the two following Spirits.

To

To prepare the white and Diaphoretical Spirit of Mercury.

ALthough some give the name of *Oyle* to these Preparations, it is improperly, since nothing can lawfully be called *Oyle* but what is fat and inflammable, but not any aqueous substance; for which cause we have rather chosen to keep the name of *Spirit*, as best expressing the nature of the thing; this Spirit is thus prepared.

Take ℔ ij. of prepared corrosive Sublimate, such as we have taught to make above; reduce it to a very subtile powder upon a Marble stone, and mix it with three times as much red clay, and knead or work it with a little of distilled Rain-water into a lump, whereof you may make pellets fit to passe through the neck of a Retort; cause them wholly to dry in the shade, and then put them into the Retort, to which, after you have placed it in sand, fit a capacious and well luted Recipient: but Note, that the neck of the Retort must be above an inch diameter in the mouth, both to give way to the pellets to passe, and also to facilitate the successe of the operation, which would be endangered, if the matter by sublimation did stop the neck of the Retort before all the aqueous and watery vapours are come forth, which might cause the Retort and perhaps also the Recipient to break. The Lute being very dry, give it a gradual fire the space of two or three houres, and there will come forth an excellent Spirit, which put by it self; and if any Mercury be sublimated, incorporate and work it again with new red Clay, and proceed as before, until you have turned all this Sublimate into Spirit, which mix altogether, then rectifie and keep for use in a well stopt Viol; the Vertues and Dosis we will deliver in the following Preparation.

To make the red and Diaphoretical Spirit of Mercury.

THis Spirit being of more toyl in the preparation then the former, ſo hath it alſo much more of vertue; and I ſay, that in caſe there ſhould be any danger in the uſe of theſe Remedies, there ſhould be much leſs even however in this whereof we are about now to teach the preparation, becauſe the ♂. or Iron which is made uſe of doth abate and ſlacken very much the acrimony and ſharpneſſe of the ſpirits of the Sublimate: but there is no doubt at all to be made for the ſafe uſe and goodneſſe of theſe excellent Medicines, which are corrected by fire and given in ſo ſmall a Doſis, by reaſon of their ſubtile and quick penetration, ſo as no body ought to fear the effects thereof, which can be but uſeful and commendable. It is thus performed.

℞ ℔ j. of good corroſive Sublimate, and as much of Filings of Needles very pure, clean and ſmall; grind the Sublimate very well, then add the Filings to it, and this mixture put in a Cellar or ſome other cool place upon a glaſs Table, that hath an edge and a ſmall Conduit in it, under which a Diſh is to be placed, that ſhall receive a yellow Liquor proceeding from the diſſolution of theſe two ſubſtances, which you are to preſerve carefully; and when it is all done, take the remainder, and having put it in a glaſs Cucurbite, pour upon it diſtilled Rain-water half a foot high to draw the ſalt thereof; digeſt it in aſhes, and ſtir often the matter, and after three dayes filtrate the diſſolution and evaporate into ſalt, which diſſolve; again filtrate, evaporate and chryſtallize until it be very pure, then dry it and make it into powder, which mingle with the yellow Liquor kept before, and it will grow as red as Saffron; pour it all into a low glaſs Cucurbite, upon which fit a ſtill-Head with a ſhort and big Noſe, to which having fitted a proportionate Recipient, and luted the joints, make the diſtillation in ſand, giving fire by degrees; there will come forth firſt a phlegm, and when you ſee that yelow vapours begin to appear, change your Recipient and encreaſe the fire, and this yellow vapour will condenſate it ſelf into a red Liquor,

quor, which will partly fall into the Recipient, and the remainder which will be too thick, shall stick to the body and Nose of the Limbeck; this done, let the Vessels cool, and take away the still-Head, to which with the phlegm that came forth at first from the sides and brims of the Cucurbite, where some part of this red substance is stuck fast, pour again upon its own *Caput Mortuum* in the bottom of the Cucurbite, in case it be not broken, if so, then take another: but leave what is in the Limbeck and its Nose, because after you shall have luted the Vessels and begun your fire to reiterate the distillation, as soon as the Limbeck feels the heat, and that the vapours begin to ascend, that which is in the still-Head will resolve it self into Liquor, and flow in the Recipient; as soon as all the red Liquor is ascended and come over the Helm, change your Recipient to encrease the phlegm, after which more red Liquor will yet ascend, which receive by it self and join to the other; reiterate these distillations and cohobations until no more of red Liquor will ascend. Then put it all in a double or circulatory Vessel, and pour upon it alkohol of Wine three fingers high; digest and circulate it in a vaporous Balneo the space of three weeks; after which take away the Blind-head, and put a still in lieu of it, and draw off the spirit of Wine in the gentle heat of *B. M.* keeping the red Spirit remaining in a strong Viol well stopt, as one of the best Remedies prepared from Mercury. Both these Spirits are of a very great and commendable use in Physick; but that which is red, is yet much more to be esteemed, and above any of the other. All of them do equally expel and drive away by sweat whatsoever may be hurtful or offensive to the body, and disturb the œconomy of life and health; they cure also several Diseases, upon which other Remedies could have no power. It may be truly said that these Spirits, but chiefly the red, are the true Specificks against inveterate Pocks, which may be tryed by their use: for the pustles or pimples vanish away of themselves, the Nodus's and hardnesses insensibly decay; night-pains and aches do cease, and the putrid, noisome and open Ulcers are cleansed and consolidated without application of any external Remedy. The Dosis must be from j. drop to iv. at the most in Theriacal water, or Camphyr'd Theriacal Spirit, spirit of Life of *Paracelsus*, spirit of *Guajacum*, spirit

ſpirit of *Diatrion*, or *mixtum ſimplex* of the ſame *Paracelſus*, or even in Tincture of Saſſafras and China Root made with white Wine. I doubt not but moſt who ſhall read this, may be of a different ſentiment from mine; believing that I produce impoſſibilities upon the Stage of Chymiſtry, and follow the tract of all the reſt, by attributing ſo many vertues to the preparations of Mercury turn'd into Spirit; but I am not at all amazed at it; for thoſe who paſſe this Cenſure and Judgement cannot certainly be acquainted with the ſubtile and fermentative action of Mercury, and with thoſe Remedies it yields. What change and alteration doth it not produce in mans body being only applyed outwardly in Frictions, Perfumes and Plaiſters? What doth it not perform in Baths? What ſtrange effects doth it not produce in Pills? and all this whileſt yet cloyed with a Body, or only altered by the intervention of ſalts and ſpirits; What then may not be hoped from it, when it is brought to a further digeſtion, and turned to a liquid ſpirituous ſubſtance which may be mixed with potable Liquors! for then it is capable to be volatiliz'd by natural heat, and its vertue brought from the Center to the Circumference, and ſo penetrates all parts and carries along with it by ſweat, whatſoever impurities and evil humours it meets with, whether a matter ripe for Diſeaſes, or only a ſuperfluity of digeſtions. But to ſtop the mouths of the Detractors and obſtinate unbelievers, I finde my ſelf obliged to relate here the Hiſtory of a Perſon eminent both in condition and place, who is yet living; having been actually blind in former time, and now cured by a Mercurial Remedy, yet in powder, and not brought to the perfection of a Spirit; and that which is more to be conſidered in this cure, is, that there was no other Remedy us'd but of one grain and half of this prepared Mercury blown with a Quill in the Noſtrils, which in a very ſhort time did produce ſurpriſing effects! for his Head ſwell'd in an extraordinary manner; then did he ſpit, drivel, ſhed tears, blow his Noſe, ſneeze, vomit, piſſe, had copious and large ſtools, & ſweated likewiſe, and all this in leſſe then eight hours; after which thoſe violent ſymptomes did ceaſe, and relent by degrees. But that which is more wonderful, is, that the very next day he began to ſee, though ſomewhat confuſedly, and from day to day after that, began to diſtinguiſh objects, and finally was totally cured, and enjoyes

joyes now one of the best and steadiest eye-sights a man can have, and since that hath performed many remarkable services to the Crown of *France*. The same Person which cured him, did also cure the most desperate Pocks with the same Remedy, given in the same quantity, and blown in the Nostrils. Where is now (I beseech you) that Medicine that shall produce the like effects, even at a great distance? This Relation is so true, that to justifie it, I can produce many a witnesse of Credit and Repute; wherefore I think no body shall judge it more strange, that I should attribute to the foregoing preparations, vertues and effects of far inferiour difficulty and worth; which makes me conclude here in a profound admiration of the supream Wisdome, and with scorn of humane ignorance, saying, That the age of Man is too short to go through the exact Anatomy of Mercury, and draw all the noble Remedies which God and Nature have placed in this Heteroclit and neutral Mixt, which hath not its like in all created substances or sublunary Beings.

To make a sweet Oyle of Mercury.

WEE have yet two distinctions more of Mercury to describe, because the processes of it are differing from the rest, and the Menstruums also, that our Artist thereby may the better be informed, and more exactly conceive whatsoever the most learned and experimented amongst ancient Writers have left upon Record, for the preparation of the great Arcana's. The first is made thus.

℞ q. v. of corrosive Sublimate made with Salt, Vitriol and Salt-peter, and thrice sublimated with new Vitriol, and salt that hath been in fluxion or fusion, and taking at every time, half of the *Caput Mortuum* remaining after sublimation, and half of new matter. Put this Sublimate in subtile powder, and pour upon it very good distilled Vinegar three fingers high; digest and dissolve them together; then separate the dissolution, and reafund new Vinegar, thus continuing until all the Sublimate be dissolved; put all these dissolutions in a Cucurbite, and draw off the Menstruum again in a sand-fire, well graduated to a dry bot-

tom: then take off the matter, and having put it in a double digesting Glasse, pour upon it spirit of Wine very much alkoholiz'd; stop the Glasse with its Blindhead, and lute it exactly, then put it in digestion in a vaporous Balneo the space of three weeks, or until the matter be opened and becomes viscuous and clammy: then draw off the spirit of Wine in a heat proportionate to its nature: this done, put the Vessel in sand, and distil it with the highest degree of fire which it is capable to receive, and at last it will yield a liquor as white as milk: cohobate that which is come forth upon the matter remaining in the bottom, and reiterate the distillation and you shall have a sweet and fragrant Oyle, void of all corrosive quality. They that know the action and reaction of Salts and Spirits, shall not finde this change from corrosive to sweet impossible: for these mixtures, these actions, these digestions, these dissolutions and distillations, do produce new beings, which the Artist should never have hoped for, as very well saith the most profound Philosopher and Physitian *Van Helmont*. *Distillatio parit novum ens.*

This Oyle or Liquor cures all internal Ulcers, and drives away by sweat all impurities which are the spring of Diseases; above all, it is an admirable Specifick against Ulcers in the Throat, those of the Reines and the Bladder. The Dosis may be from j. drop to three in some appropriated Liquor. But if the Artist will perfect a true Magistery or Elixir of Mercury, let him digest the calx of Gold well opened in this Oyle, during the space of six whole weeks in a circulatory Vessel, and he will have an inestimable Remedy, much exalted in Vertue, and the Dosis whereof exceeds not from half a grain to two for the most.

To prepare the Astrum Mercurij, or star of Mercury.

℞ ℔ j. ſ. of quick Mercury, seven times sublimated with salt, Salt-peter and Vitriol, and as many times revivified with quick-lime, put it in a Cucurbite, and pour upon it ℥ xij. of very good spirit of Niter; cover the Cucurbite with its Blindhead, and let them dissolve in the slow heat of ashes, if need be, or place the Cucurbite in sand after the total dissolution of the Mercury, and

draw

draw the spirit from it to a dry bottom: then reduce to powder the remaining lump on a Marble mortar; this powder put in a new Cucurbite, pour upon it very good Vinegar four inches high, cover the Cucurbite with its Blindhead, and put it in sand, let the matter digest and boyl the space of 24 houres, then taking off the Blindhead, put a still in the place, and draw off the Vinegar to a dry bottom, and thus draw it three times; Beat the lump to powder, and distil seven times upon it distilled Rain-water, or so long till the lump hath no taste of the vinegar left at all; then beat it again to powder, and put it to digest, for the last time in a double Vessel, with its equal weight of true alkohol of Wine; cover it with the Blindhead, and being well luted, place it in a vaporous Balneo with shred straw, and so digest it during six weeks in an equal and continued heat. This done, pour all the matter into a Retort, and distil it in ashes mingled with sand in a graduate heat, until even by encreasing of the fire nothing more will come forth; open the Vessels after they are cooled, and pour what you finde in the Recipient into a Cucurbite; draw off the spirit of Wine in a slow heat of *B. M.* and you shall finde in the bottom of the Vessel an Oyle or precious Liquor of a very good smell, which is called *Astrum Mercurij*, or *the Star of Mercury*, not to be given to sick persons but from ȝ. drop to ii ȝ. in appropriated Liquors. We shall relate the vertues of it after we have taught the extraction of salt of Mercury, because it hath the same proprieties and efficacy.

To make the Salt of Mercury.

TAke what was left after the distillation of *astrum Mercurij*, put it in a double Vessel, and pour upon it some of the said *astrum* or *star of Mercury*; put them together in digestion in ashes to a moderate heat the space of three dayes, after which separate the extraction by decantation, that no impurity may go along with it, pour upon it a good quantity of very subtile spirit of Wine, circulate them together the space of xv. dayes in a well stopt Vessel, after that draw off the spirit of Wine in *B. M.* and cause the Oyle to ascend in ashes, and you shall have the precious

ſalt of Mercury in the bottom of the Veſſel; keep both theſe excellent and noble Remedies for uſe. They are both a very ſecret and ſpecifick Remedy to cleanſe, and rectifie the whole maſſe of the blood: upon which account they are wonderful for the cure of Leproſie and Pocks. They alſo cure all manner of never ſo malignant and inveterate Ulcers; and carry away and cleanſe eaſily all manner of ſcurf in the Head, ſcab and itch; the Doſis of the Salt is equal with that of the Liquor. Their working is by tranſpiration and ſweat. We will not ſpeak of the Liquation or Reſolution of Mercury, though we did promiſe above to give an Example thereof, becauſe this operation hath an affinity and dependance on the two laſt diſtillations by us deſcribed: wherefore nothing remains for us to treat of, but of the Extraction whereby the ſulphur of Mercury may be procured: for we have ſhewed above how the ſalt thereof is to be made.

Tincture of Mercury, which is called The Sulphur *thereof.*

℞ j. p. of red Precipitate made with ſpirit of Niter, bray it in a Mortar, with ij. p. of deſiccated ſalt, and iij. p. of Vitriol deſiccated alſo to whiteneſſe; put this mixture in a Matraſs, and ſublime it in ſand, with a ſtrong and violent fire towards the end. Put this ſublimate in a double or digeſting Veſſel, pouring upon it good diſtilled Vinegar four fingers high, cover it with its Blind-head, and put it in aſhes to digeſt the ſpace of three weeks, and the Vinegar will take a yellow Tincture; this draw off by decanting the Veſſel, and put new vinegar in the place; and thus proceed extracting and digeſting with new Menſtruum, until it takes colour no more. Filtrate all theſe Tinctures, and pour them in a Cucurbite, which place in ſand, and by diſtillation draw off all the Liquor to a dry bottom, and in the bottom of the Cucurbite you ſhall finde the ſulphur of Mercury in a red powder, which keep in a glaſs Viol for uſe. *Paracelſus* gives very great Elogiums and commendations to this Sulphur, and attributes unto it the vertue of curing the Gout, Epilepſie, and the great Pocks radically, and without any fear of relapſe; the ſenſible effects thereof are Urines and Sweats; otherwiſe it works by a gentle, natural and

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insensible transpiration. The Dosis may be from j. *gr.* to iij. in some Conserve or Cordial Confection, or even in Extract of Juniper.

Though we have already warned before all Chymical Artists in the Theorical part of this Treatise, not to make any use of Chymical Remedies, unlesse they have prepared them themselves, or be very well acquainted with, and dare trust to the experience, knowledge and conscience of those from whose hands they will take them. We think our selves nevertheless yet obliged to say somewhat more of this matter here, chiefly by reason of those pernicious accidents we have seen to happen to several persons of all conditions, for having trusted and having admitted Mercurial Remedies not rightly prepared: it is therefore much safer to abstain from their use and administration, then to hazard a repenting for all your life, either in your own person, or of those which you shall expose to danger and torment by an ill prepared and dangerous Remedy, which makes me to advise and counsel those, that are not yet sufficiently instructed in the Theorical and practical part of Chymistry, not to venture upon the preparation of the great Mercurial Remedies, until they have attained to a sufficient and exact knowledge of the materials they are to handle and work upon; and to a happy and long experience of the goodnesse of Remedies by them prepared: and since we have the injunction of our great Master *Hippocrates*, to make our experiments upon a vile subject, even in trying the vertue of a Root or a Plant: how much more are we to be circumspect, when we go about to use Remedies extracted from Metals or Minerals, when their vertue and activity is not yet come fully to our discovery and knowledge. Here then must we proceed warily, and sound the depth before we enter this Foord, lest we forfeit our Reputation, and endanger the life of the Patient. For although the Processes and Operations seem to be plainly delivered and easie enough to practice, yet the ill choyce of materials, the action of the fire, the want of Vessels, some mistake or inadvertency, some neglect or impatience of the Artist familiar enough to the *French* Nation; do very much alter the nature of things, and imprints in it new faculties, and quite different from those we do expect. Let then every body work with know-

knowledge, prudence and circumspection, with conscience and very long patience, if they will attain to the possession of those great Remedies, which Mercury and Antimony, of which last we are now to treat of, do yield.

Of Antimony and its Chymical Preparation.

AS Antimony is the stumbling stone of many of those which professe Physick, and they that are not acquainted with it, will traduce it as the vain Idol of Chymists and Chymistry; so must we with all possible endeavour make it appear, that it is with very just reason and good purpose, that Artists have Antimony in esteem, since it is grounded upon their knowledge of its nature, they having not, as the Traducers and Diffamators thereof do, been contented with the Rind and superficial examination of the same; but contrariwise, having opened and anatomized it, to extract those wonderful Remedies which daily do produce such noble effects, to the great praise and exaltation of Chymistry, and the discredit of those who publiquely professe their defaming by invectives, and ridiculous calumnies against such as daily use it with skill and knowledge, order and Method, and consequently with desired success.

But to cleat more this truth which we have laid, we must in few words declare the nature of Antimony, and of what substance it is made of, to make it obvious and plain, and evident to the least capacity, that those that have an aversion and hatred for it, do only condemn it for want of true knowledge, both of the substance and first preparation thereof, as we will declare in the sequel of this Discourse.

Antimony then is nothing else but a Marcassite, mean or middle Mineral, which nature had destined to a metallick production; but hath fainted in the way, want of not having in it self the necessary dispositions to attain to that perfection; or because it was prematurely snatcht away and torn off from its matrix, as an unripe fruit pluckt off from the tree; or finally, by reason of the terrestrial impurity of its mixture, and the disproportion and indigestion of its principles.

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But to let the Reader better understand, this we say, let the Artist know, that Antimony doth first of all consist of a mineral sulphur, partly very pure and answering the nature of that of Gold, whose foundation is in its redness and is fix; and it is in the center of this Solar sulphur that all the wonders of Antimony are placed; the other part of this sulphur is impure, dissipable by fire, and volatile as common Brimstone, and to this Sulphur are commonly referred and attributed the violent and raging operations, when it is not well and duly corrected, or ill and negligently separated. Secondly, This Mineral is compounded of a metallick Mercury in abundance, which is nevertheless indigested and fuliginous; but yet more concocted and coagulated then quick-silver, because it participates of the Saturnine nature: finally, the third constituting part or principle of our Antimony, is a gross and earthly substance which it holds from its matrix, containing very little of sensible salt, though salt was the first cause of its production: but the nature of it is chang'd by reason of the several alterations and disguises it hath suffered by the concoction and digestion of its centrical fire.

By which description of Antimony and its constituting parts is plain to be seen, that it is nothing else but a gathering and conjunction of Vitriol, Sulphur and Mercury of the nature of Lead met together, and that by consequence it cannot be dangerous or condemnable in it self, since every day these three substances are used by themselves, and taken apart in Physick, either as they grow naturally, or prepared; and wherefore then should not crude and prepared Antimony be made use of also? But it will be objected unto me, That the most famous and celebrated Authors which have written of Antimony, call it *a Poyson*, and say, that it doth participate of some mixture of Realgar and Arsenick; To which we answer, that Lead, Quick-silver and Brimstone, participate also of the same mixture, and yet are not banished from the commerce of Physick: since even Realgar and Arsenick are made use of, after the malignancy of their salt and sulphur hath been corrected by the ministery of fire, and of the spirits that are capable of this operation, so that they may be inwardly administred, supplying us also with the best Topical Remedies against all dangerous and malignant Ulcers. But it is quite otherwise of Antimony,

mony, which daily is administred by the mouth wholly raw, and without any accident even to sucking Children : and moreover, made to boyl in the weight of ℔ ß. in Decoctions against the Pocks, and also put in cold infusion of water to open the body and remove obstructions in the Entrails. Let then our Artist know, that when ever Ancient or Modern Authors which have treated concerning Antimony, have said it was a Poyson, it is to be understood only comparatively between the common preparations of Antimony not yet sufficiently corrected, and so consequently causing violent Vomits and Stools, with those they describe that are harmlesse and of no danger, but which only do strengthen Nature, and help it to expel insensibly whatever is noxious and hurtful to it. Wherefore let us conclude this small preliminary Discourse of Antimony, by the words which *Zwelferus* hath to this purpose in the Appendix inserted to the end of his Notes upon the *Pharmacopea of Ausburg*, in praise of this noble Mineral, and against the unlearned and ignorant Despisers thereof. *Cum stibij vel antimonij nomen apud aliquos artis pulcherrimæ ostores, præsertim ignorantes, tam malè audiat, ut qui solummodò ore illud excidere permittit, mox ex medentium cœtu proscriptus ad veneficos amandetur; quia tamen hoc de antimonio judicium, non in alia officina, quam cerebri ad Lunæ crescentis & decrescentis mutabilitatem tornati excuditur; & vix alius de eo magis perversè & perfricta fronte loquitur, quàm qui minimam ejus habet cognitionem; Idcirco nullo canum similium hoc sidus allatrantium, convitio à veri tramite dimotus, hoc in præsens asserere non erubesco: antimonium verè unam & principalem esse columnam universæ Medicinæ; Quipè ex eo tanquam Proteo, diversis duntaxat præparationibus, diversarum operationum medicamenta saluberrima, utpotè antiloimica, antivenerea, diaphoretica, purgantia & vomitoria blanda, sanguinem universum mundificantia, vulneraria, pectoralia, imo universale medicamen seu Panacea ipsa, erui possunt. Nec constat ex vegetabilibus unicum emeticum, quod minore cum periculo exhiberi possit, quam antimonium dextrè & debitè præparatum: nunquam enim tormina ventris, Hypercatharsin, fluxumque nimium colliquantium causabit, etiamsi aqua frigida superbibatur.* We should think it superfluous to say any more of it : wherefore we will come now to the choice of Antimony, and the several de-

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nominations given unto it, by those that would keep secret the mysteries, and hide the preparation thereof, that it may be a Key to the Artist for understanding other ænigma's and dark Ridles, and explicating of their mysterious Hieroglyphicks.

Chymical Philosophers do characterize this Mineral with a Figure representing the round World, and a cross on the top thereof thus ♁ to denote, that as the mysterie of the Cross doth purifie, and heal the soul from all spiritual filth and leprosie; so Antimony and its Remedies well and duly prepared, do cleanse and free the body from all impurities, which breed and entertain the Diseases whereby it is tormented and afflicted. They call it by several *ænigmatical names*, as the *Wolf*, because it consumes and devours all metals, Gold excepted; Others name it *the Proteus*, because it turns it self into all Forms, and takes all manner of colours, by the assistance of *Vulcan*, which is the fire; Others call it *the Root of Metals*, both because it is found often near their Mines, and that many are of opinion it is the rudiment and principle of Metals: it is moreover denominated *the sacred Lead*, *the Lead of the Philosophers* and *of the Wise*, because so it hath some analogy and affinity to the nature of *Saturn*, which devoured his children as he devoures Metals, and because also some do take it for the subject matter of the great Work of Philosophers, and of their Quintessence: *Basilius Valentinus* calls it *the Eastern Lion*, *Paracelsus the Red Lion*, and *Glauber* describes it as *the first Being of Gold.*

All Authors are agreed that the *Hungarian Antimony*, or *Transilvanian* is to be chosen for the noblest and highest operations, because it is the purest, and participates more of the Solar nature, and so its internal sulphur is much more exalted. It is found nevertheless in many other places, and chiefly in *Germany*, and *France* hath some which is not altogether despicable. So that those which cannot come at that Antimony which is digged about golden Mines, must take and chuse in lieu of it to supply their work, a clear, pure and shining Antimony, with clear and bright faces or glittering flawes: if it be mineral, mixt with a kind of changing and playing colour, as that in Doves necke, or the changes of the Opal or the Rainbow, which are all signes of the predominancy and abundance of its sulphur: but if it be common

Antimony that hath beem melted already, that which has the longeſt ſtreakes or ſhining and ſparkling lines, or flawes with the ſames notes of colour, which we have recommended in the other, is to be preferred. They that will try it further to be ſurer of it, muſt take ℥ j. of Antimony made into very ſmall powder, and temper or ſprinkle it with very good ſpirit of Vinegar; then let it dry or evaporate in the fire upon a ſmall Iron plate, or ſome ſmall piece of an earthen pot, with this caution nevertheleſſe, neither to flow, or melt in the fire: and if the powder remaines of a red colour, it is an aſſured ſign of the goodneſſe and abundance of its ſulphur. But we hold the *beſt tryal of Antimony* to be its reduction into Regulus by the help of *Mars* and Niter, without any mixture of Tartar, by reaſon of its Alkali which diſſolves ſulphurs: for that which yields the greateſt quantity of Regulus and the pureſt, is the beſt, ſince the Regulus is nothing elſe but a well purified Antimony.

The general preparations of Antimony.

BEfore we come to the particular Operations which are made upon Antimony, we have thought it neceſſary to give firſt a general Idea of ſuch preparations as are made upon this noble Mineral; the harveſt of them being ſo great, that to deſcribe what Modern and Ancient Authors have delivered of it, and what by our own experience we are confirmed in, would require endleſſe Volumns, the vertues of Antimony being bottomleſſe and innumerable, as by the ſequel we ſhall make it appear. We ſhall then reſtrain and couch up our ſelves according to our wonted cuſtome, with ſome examples of each of the moſt general Operations, by which the Artiſt will be guided and ruled to perform ſuch others, as the neceſſity of Patients or his own curioſity ſhall prompt him to undertake, that he may not come ſhort of giving or receiving the ſatisfaction he looks for.

The *general preparations* then made upon Antimony, are: Firſt, *Calcination*; ſecondly, *Sublimation*; thirdly, *Diſtillation*; fourthly, *Liquation* or *Reſolution*; fifthly, *Extraction*; ſixthly, *Infuſion*; ſeventhly, *Salification*; ſome do add in the eighth place,

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Mercurification: but we will omit that, having made a hundred succesless trials, by which we could never be convinced of the truth thereof; wherefore we abstain from it upon the same account, and for the same reason we have hinted, speaking of the mercury of Metals; and further, knowing full well that *Paracelsus* and others, understand nothing else by the *mercury of Antimony*, then its well prepared *Regulus*, without any diminution or loss of its Solar or Central sulphur, though we deny not the possibility thereof: But we will impose upon no body, nor be the cause of any losse of time upon Processes and Operations that have never, nor never shall hit or succeed right. The *Calcination* is twofold, dry and moist: the dry yields the Glasse, Crocus or Saffron, Diaphoretick Remedies and Regulus; the moist gives the Precipitates. Sublimation makes the Flowers, Cinnabar or Vermilion. The Distillation drawes Vinegars,, Oyles and Spirits. Extraction communicates Sulphurs and Tinctures. Infusion gives emetical Wines and Ophthalmical Waters; and the Salification, Salt.

The particular preparations of Antimony, and how the Glass of Antimony is to be made by plain distillation.

THere are so many descriptions of the manner of preparing the Glass of Antimony, that Artists are confounded in this particular, and hardly know how to chuse the best: but as we are sufficiently instructed, both by Theory and practice, that the best is that which is made without addition or mixture, we will exemplifie and propound for a pattern the preparation of this, because whosoever can perform it exactly, shall never be put to seek in executing the others, the melting, clarification, and diaphaneity whereof is much easier, by reason of the union of several salts, by which the fluxion is facilitated and becomes both quicker and cleanlier; this Glass without addition is thus made.

Take well chosen Antimony, and being made into very small powder, calcine it in a very large and capacious earthen Dish, not glazed or varnished, upon a slow fire, stirring continually with an Iron Spatula or Slice; this Calcination is to be made in a place where the ayr may freely passe thorow, and the Artist must stand above

above the wind, that he may receive no inconveniency by the vapours exhaling from the pure sulphur of Antimony, nor oppresse or suffocate his breast; above all things great care must be had not to make too big a fire, otherwise the excrementitious moisture being too suddenly driven away, the melting and vitrification thereof would be hindered; after you have kept this Antimony three or four houres upon the fire, and that you shall see it begin to crumble it self and gather up together, draw the Vessel off from the fire, and pour the matter upon a Porphyry stone, whereafter it is grown cold you may reduce it into alkohol; then begin anew to calcine with a little more fire then at the first time, and thus proceed three or four times, encreasing still the fire at every time that you bray your Antimony, and you will have an antimonial Calx of a whitish gray, which you may use to make your Glass therewith; as also to prepare an excellent Diaphoretick against the Plague and malignant Feavers: to attain to this, Reverberate part of this calx in a Crucible in open fire, until from white it turns to yellow; and if the calx do happen to crumble during the Reverberation, take it immediately off from the fire, and bray it again, and thus go on until all the external sulphur be evaporated, and the internal begins to appear and manifest its self by its yellow colour, which it yields when it is come to this pass; put it in a Matrass, and pour upon it very good spirit of Wine, and digest them together the space of fifteen dayes, which being over, kindle of this spirit seven time upon your Diaphoretick to fix it the better. The Dosis must be from iiij. *gr.* to xij. in some Conserve of Marigold flowers.

But to perform the Vitrification, take ℔ ß. of the prepared calx, and add to it ℥ ſ. of crude Antimony in powder, to facilitate and advance the fusion, which you must make in a wind-Furnace in a Crucible of very strong matter, capable to resist the fire, and last in it, and when you shall perceive your matter in the Crucible to flow clear and bright, try with a small sharp Iron which may be clean, and expose it between your sight and the light, and if it be red or transparent as a Granate or Ruby, pour it into a brass Bason, or a Copper, or brass dressing plate well scoured, and made warm before the Glass be thrown upon it, and thus shall you have a pure Glass, red and transparent, which may

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be used for many noble and useful preparations, which we will place in their Rank and Order, according to the Rank and Classis of their general preparation, wherefore an Artist must never be unprovided of it.

To make the Crocus or antimonial Saffron, which is called Crocus Metallorum.

WEE will give three descriptions of this Operation: the first more slight, common and easie; the other something more intricate, and the third more laborious; that as the work and preparation of it is various, and for different reasons, so the Artist may be instructed in the one and the other, to be the more capable thereby to satisfie himself and others.

The first Crocus Metallorum.

WEE have in general recommended to the Artst, to have a special care of the choice and purity of his materials: but he must be more circumspect then ever in all the Antimonial Operations, because from thence depends very much, as also from his prudence and knowledge, the good or the bad successe of his Operation.

Wherefore let him take well chosen Antimony, and well depurated Salt-peter to make all the following preparations: for as Niter is called *the Soap of the wise*, so must it be pure and clean to perform that cleansing, and that action which Authors hope to finde in it. ℞. then well chosen Antimony and well purified Sulphur *ana* equal parts, beat them to powder each apart, then mix and put them in a brass Mortar covered with an earthen-pot cover, or with a round Tile, having a hole in it of the bigneſſe of a Thumb in diameter, through which it may be set on fire with a small kindled coal; this Operation which is called *Fulguration*, *Pulmination* and *Detonation*, must be made in an open place, and you must get above the wind, lest you be overcome by the smoak, which is noisome and dangerous, by reason of the corrosion of the

the nitrous Spirit, and the inflammation of the external sulphur of Antimony. When the Mortar is grown cold, draw off the matter from it which will be of two kinds : the uppermost participating of Salt-peter, Sulphur and Antimony; the undermost, which is in a compacted and close lump of Liver-colour and resembling unto it, for which reason it is called *Hepar antimonij*, or *Liver of Antimony*, is properly nothing else but an instantaneous, imperfect and opacous vitrification of Antimony, by the calcination which the Salt-peter performs in a moment. These two matters are to be put together in a brass Mortar, and triturated to a subtile powder, which must be washed in warm water, to separate the fatness thereof; set the first Lotion aside for the use we shay say hereafter, and continuing the trituration, lotion and effusion of the Liquor loaden with the subtilest powder, until all the body of this Hepar or Liver of Antimony be transfused with the water into an impalpable powder; separate the said water, and dry the powder gently by evaporation, and you shall have that which commonly is called *Crocus Metallorum*, or *Saffron of Metals*.

If the first Lotion be filtrated, and this clear water precipitated with distilled Vinegar, there falls a red powder in the bottom, which is called *Sulphur auratum diaphoreticum*, diaphoretick golden Sulphur, but very improperly, because it is nothing else but a portion of the external sulphur of Antimony, which the fixt salt of the Niter did keep dissolved and hidden in it self, and has been made corporeal and visible by the help of the distilled vinegar, because all whatsoever is dissolved by the salts alkali, is precipitated by acid spirits; and contrariwise, all what is dissolved by acid spirits, is precipitated by alkaly's. But let it not be fancied that this pretended golden Sulphur be Diaphoretick; nor let the Authors word be taken for a warrant in this matter : for it will deceive, unless you give it in a very small Dosis, which shall not work, and if the Dosis be encreased it will cause exceeding and violent vomiting : for it is nothing else but a very subtile *Crocus metallorum*, wherewith many do prepare their Emetical Wine.

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The second Crocus Metallorum, which is thought to be that of Rullandus.

THis second preparation doth not differ in the matter, it only differs in the work which is something of longer deduction: for you must take ℔ ß, of Niter, and melt it in a Crucible, and being melted draw it off from the fire, and try with a small parcel of Antimony reduced to powder, if it will not take fire when put upon; and if it happens so, then stay yet a while, for it must not burn to a flame: but as soon as by trial you have found that the mixture may be made without inflaming, pour upon it gently and by little and little ℔ ß. of Antimony made in powder, and mix it well with a Spatula or Slice with the melted Niter, until all the substances be well incorporated; this done, set it on fire with a kindled coal, as you did the other, and you will have the same effect to succeed. This mixture and manner of working is only for this end and reason, that the Niter in fluxion mixes & doth unite it self, and penetrates much better the Antimony, then the Niter cold and in powder, and the conflagration or quick burning doth carry much better away the impure sulphur of Antimony, which makes the Crocus Metallorum lesse violent in its operation, since all the ill consequences commonly feared in Antimony, take their rise from this impure and dangerous Sulphur, to which, though upon slight grounds, are attributed the arsenical and venomous vapours of it.

The third Crocus Metallorum.

THe manner of working this third preparation is quite differing from the two former, but not lesse to be valued: for it requires a longer Calcination, and consequently a better and more exact maturation of the undigested parts of Antimony, by the help of the salts and fire: and you must proceed thus.

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℞ Well choſen Antimony, well depurated Salt-peter, and common Salt, well cleanſed and deſiccated *ana* equal parts, reduce them into powder by themſelves, then mix them, the mixture put in a well luted Crucible, covered with a Cover, bored in the middle with a hole of the bigneſs of the ſmall fingers end, that the vapours may exhale through it; put this Crucible upon a thick Tile or Brick in a wiped Oven, and lay round about it black and quick coals up to the top of the Cover that it may be heated by degrees, and when it is once heated, and that the vapours of the ſalt and antimonial Sulphur begin to riſe through the hole, encreaſe the fire, and open all the doors of the wind-Oven, adding to it alſo, if need be, the ayr of the bellows, that the matters may flow very well in the Crucible, and thus continue till the ſmoak or vapours begin to ceaſe, and even then continue a quarter of an hour longer; then let the Crucible wax cold and break it afterwards, and you ſhall finde your Antimony turned into a kind of Regulus, red as Vermilion under the ſalts, which as ſcums and droſs does lye above it; break it with a Hammer, and reduce it to powder without any Lotion, and keep for uſe as one of the beſt kinds of Crocus Metallorum, to make Emetical Wine; they attribute unto it the faculty of working more downwards then upwards, though it excites alſo vomiting, but with leſſe violence.

Theſe three Crocus's may equally and promiſcuouſly be uſed where the one fails inſtead of the other, ſince they have the ſame vertue, only that they work more or leſſe violently, which inconveniency may be prevented and remedied by diminiſhing the Doſis. Their faculties are, to expel the Head-ach which proceeds from impurities of the ſtomach; as alſo to help the Epilepſie, Pleureſie, Melancholy, Madneſſe, and to help thoſe that have running paines, and voluntary or ſpontaneous wearineſſe; they are alſo extraordinary good Remedies in all Feavers, as much continual as intermittent. Their operation is wonderful againſt Plague, arthritical paines, coagulation of blood. They are never adminiſtred in ſubſtance, but their vertue is extracted by infuſion or ebullition, and when haſte requires, with ſome fermented Liquor, as Wine, Hydromel or Mead, Cider, Beer; The Doſis may be from iij. *gr.* to viij. x. and xij. Moreover, they prove admirable Remedies in Glyſters, if the infuſion thereof be put, from ℈ j. to iiij.

iiij. in Meat, Broth, or some Emollient or softening or Carminative Decoction.

Thus much we had to say of that preparation which is called *Crocus*; by reason of some resemblance in colour with Saffron, which hath a Solar Tincture, but their vertues not analogal to that noble spice of the Philosophers: wherefore it is but improperly that they are called *Saffron of Metals*: for the true Sons of Art will only impart this name to that noble and excellent preparation of Metals, by which they are reduced to a saffranous, sweet and pleasant powder, which is their meer volatile sulphur, capable of all the vertues and qualities of Saffron: as to procure sleep, mitigate pains, strengthen the Heart and all the functions of Life, open obstructions, serve as a consolidative Balsom, and hinder the accidents of Wounds, maturate, ripen and dissolve the hardnesses and Nodus's, all which vertues are attributed to vegetable Saffron, though weakly: but the true Saffron of Metals, which is the true *Philosophical Crocus*, doth eminently and perfectly contain and possesse all these Vertues we have related: for it provokes sleep, and allayes all griefs, because it becalmes all the irritations and rage of the internal *Archeus*, and corrects all the defects and deviations thereof, strengthens all natural weaknesses, removes all obstructions from the entrails very efficaciously, and in a short time: it stops also and appeases all colliquations of humours and immoderate Fluxes; finally, cures inwardly and outwardly all kind of malignant, cancerous fistulous Ulcers; and to say in a word, remedies all Diseases to which humane Nature is subjected; because it is a true volatile Sulphur, which consumes and gently drives away by the power of its heat and internal light, all the impurities and evil humours which lay lurking in the superfluities of the last digestions. But this place doth not allow us to say more, our design being only to inform the Sons of Art, that then they will become capable of seeking this noble and divine *Crocus*, when in earnest they shall apply themselves to the love and true worship of their Creator, that by the help and assistance of his Light, they may penetrate into the most abstruse Closet of those high mysteries of Art and Nature, which are contained in the true *Crocus of Philosophers*.

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The manner of preparing Diaphoretical Antimony.

IF we did recommend the purification of Salt-peter for the Crocus Metallorum, we have reason to do it much more for the preparation of this Diaphoretical; for as this Remedy is excellent, so must the Artist study with all his power to prepare it with all requisite circumstances; and the chief point of this Operation doth consist in the goodnesse, purity and sincerity of the Niter, because by him the impure sulphur of Antimony is to be expelled, and it is he that must digest, ripen and fix the indigestion of its Mercury, as we shall make appear in the progresse of the Operation; which is thus prepared.

℞ ij. p. of very pure and dry Salt-peter, and j. p. of well chosen Antimony, beat them each asunder into very small powder, and mix them to the other: then fit a strong earthen pot not glazed, or a good Crucible upon a round Tile in a wind-Furnace, and cover it, encompassing the same with kindled Charcoal almost to the top, that the Vessel may be heated by degrees, and when it is grown red all about, blow in it to get out the filth or ashes if any be fallen in, then pour half a spoonful of this mixture, and cover the pot with a well and exactly fitted Covering; as soon as the matter touches the Pot it presently kindles, and the Salt-peter doth forcibly carry away with it the impure sulphur of Antimony; and what remaines after this detonation or fulguration, doth fix it self in the bottom of the Vessel by the action of the fixed salt of Niter, and the activity of the fire; thus proceed till you have made an end of calcining your Antimony, putting it thus by little and little in your Vessel: which done, add another parcel more of very dry Niter to what is in the Vessel, that it may flow with the matter, and perfect the Coction and fixation of it by the penetration and action of the spirits of Niter, which by their subtilty and quickneſse insinuate themselves in and amongst the least atomes of Antimony; and thus concoct, wash, and fix it in a white and bruisable substance after it has been edulcorated and desiccated. Keep up the fire one or two houres more, after you

you have put in the last parcel of Salt-peter, then cease and let the matters cool in the Vessel: you must carefully remove all the filth and impurity which might remain about the Pot, before you put it to soak in a pan full of boyling water, which by degrees shall dissolve the fixed Niter, which makes part of the lump remaining in the pot with the Antimony; and when this lump is totally dissolved, stir that remainder in the bottom of the Vessel with a good Pestle; and when the water appears milk-white, pour it in another Vessel, and then grind in a Marble mortar what remaines in the Pan, and continue still to wash it with the same water, until all the antimonial substance be converted into an alkohol, as we have already taught in the first preparation of the Crocus Metallorum; and if you intend to have sooner done, break the pot or Crucible as soon as it comes from the fire, and draw out the matter from it, which bray on a Marble mortar, and wash it with ℔ ij. or iij. of water only, until it be all converted into alkohol. Draw off this first water by decantation as soon as it is setled, and lay it by it self; then pour new upon what remains, and thus go on, until the water comes off from it tasteless; which done, dry the Diaphoretick and keep it for use.

It was not without reason we have said, that the first water wherein the fixed Niter was dissolved is to be set apart; because the nature of this salt is altered by the sulphur of Antimony, and is become of the condition of alkali and lixivial Salt, whose quality and essence is subtile, penetrating and igneous rather then corrosive, which is the reason it has dissolved the purest portion of the antimonial Regulus impregnated with its fix and solar Sulphur, very well concocted and digested by the action of the fire and Niter; and though this water appears clear, yet it hath contracted a weight: wherefore this water must be precipitated with distilled Vinegar, and it shall immediately turn as white as Milk, because the Diaphoretick which was hidden in the dissolution of it doth manifest it self, and with no unpleasant smell; but contrariwise hath the very smell of Cream and sowrish Whey, whilest it is edulcorating, and after the desiccation is made to keep it for use; and as we have said, that the precipitate of this Diaphoretick was of a very good smell, by reason of the fixedness of its internal sulphur, so must we make it appear, that that

which is prepared out of the pretended *Sulphur auratum* or *golden Sulphur*, whereof we have ſpoken above, with diſtilled Vinegar, hath a very unpleaſant ſmell, becauſe it is nothing elſe but the external, impure, and volatile ſulphur which the ſalt had drawn to its ſelf, being not ſufficient to draw it and expel away, much leſſe to fix it, the parts of Niter and Antimony to make the Crocus Metallorum being but equal, whereas in the preparation of the Diaphoretick, there is firſt ij. p. of Niter againſt j. p. of Antimony, and that moreover j. p. is added after the Fulguration or Detonation is ended, which doth perfect the maturation and fixation of all the crude and indigeſted remaining matter. We have thought neceſſary to ſay ſo much to inform the Sons of Art, that whatſoever muſt fix a ſubſtance, ought ever to be in triple proportion to what is to be fixed; and contrariwiſe, what is to be volatiliz'd, muſt in the ſame proportion be leſſe, then what is to act and work upon it; and ſometimes the proportion is quadruplicated: as ℥ iiij. of ſpirit to volatilize ℥ j. of ſalt, and ℥ iiij. of ſalt to fix ℥ j. of ſpirit; which obſervation paſſes for a fundamental Axiom in Chymiſtry. The Doſis of this Diaphoretick in Body and groſſe ſubſtance, is from *gr.* iiij. to xxx. and of the Precipitate, from *gr.* iij. to xx. The vertue of both is very eſtimable and of high value in Phyſick; for though we call them *fixed*, it is only comparatively to other antimonial Remedies which provoke violent Vomitings and Purgation: for the Diaphoretick works by an irradiation of vertue and efficacy almoſt inconceivable, becauſe it ſtrengthens gently and naturally the internal *Archeus*, which is the principal Director of all the functions of Life, either in health or ſickneſſe: wherefore the uſe of it muſt be continued without interruption during the ſpace of a Philoſophical month, becauſe during that time, it is capable to alter and change for the better, whatſoever is hurtful and hinders the liberty of the actions of this principal and real *Archeus*. But if it be applyed and appropriated to particular Diſeaſes, as alſo to parts of the body, we ſhall be bold to ſay, that the Diaphoretical Antimony is an unparalleld Remedy, to reſiſt the corruption which may breed and lurk in the body, mundifying and rectifying the whole maſſe of the blood, and being capable to open the moſt inveterate obſtructions of the Liver, Spleen, Meſentery, Pancreas,

creas, and all other parts besides: it removes the stopping of Courses, cures Green-sickness, Dropsie, Hypocondrical Melancholy, Pocks and all the accidents thereof; mundifies and cures inward and outward Ulcers, breaks inward Impostumes without danger: and finally, is singular against malignant and spotted Feavers, Measels, and small Pocks. And though this Diaphoretical be a general Remedy, there are some nevertheless which think to particularize and render it specifical to certain parts of the Body, and Diseases, adding Metals, as Gold, Silver, Tin, Copper, or Steel to the Antimony, or its Regulus before it be calcined with Niter, and thus pretend to render it Cordial, Cephalick, Stomachick, Splenetick or Hepatick; but our opinion is, that those Metals are not opened enough for this plain antimonial Fusion, to communicate so easily their vertue which doth properly lurk in a central sulphur, not so easily extracted; and as Antimony is a Mineral, whose sulphur is lesse close and fixed, let us content our selves with what Nature and Art have so bountifully supplyed us with, and with so ample and so diffused a vertue.

Of the Regulus of Antimony.

WEE have already said above, that the Regulus of Antimony is nothing else but depurated Antimony: but that purification ought to be made without Tartar, because the alkali which results from the Tartar and Niter is a mixed salt, which doth extract and dissolve the most fix and inward sulphurs of Mixts, as it appears by the feces and skim swimming above the Regulus made with Tartar, which are high in colour, and by the small quantity of Regulus extracted this way. But it may be said, that it is not so much the true Artist's part to seek for quantity as quality; and that although he may attain to more by another manner of working, yet ought he to prefer and acquiesce in that which yields least, because it is thought to be more pure and more open. To answer this Objection, we must lay first for a Foundation, that Steel is to be used for making of the Regulus, to make it good; that Iron or Steel are capable agents to attract to themselves the impure and combustible sulphur of Antimony, by reason of the

ficcity, porosity, and terrestreity of the Iron which longs to supply himself of what he finds to be destituted of, attracting it from every subject or substance wherein he can finde it: as we have in some manner made manifest when we described the purification of Iron, and the turning of it into Steel, by the help of the fat, volatile and unctuous sulphur of Ox-hornes. Moreover, Niter doth cause a sudden inflammation, and a fusion, which raises up by an ebullition, and as it were an instantaneous fermentation, all the Iron or *Mars*, the terrestrial impurities and external sulphur of Antimony, insomuch as the only Reguline and Mercurial part of Antimony, remaines in fusion in the bottom of the Crucible, possessing in it self the fix'd and solar Sulphur, which by sympathy and analogy of substance hath attracted the soul of *Mars*, which is its pure sulphur. Thus must the Artist consider, that in the operation the pure part of the Antimony is preserved, and that we deprive it of its impurity; and moreover, that we add yet to this part another Sulphur, which hath no lesse efficacy then that which is contained in it: whereas Tartar never fails to dissolve and extract the pure part and its sulphur, which must of necessity be well preserved, if you will have the other operations resulting from it, to succeed with that vertue and efficacy which is desired, of which nothing can be the cause but this pure Mercury and its sulphur; all which reasons invite us to give you the description of this following Regulus.

The best preparation of Regulus of Antimony.

℞ ℔ ß. of ends of Horse-nails, or ℔ ß. of Filings of Iron or Steel very pure and clean, put in a good Crucible, something big and deep, and place it in a wind-Oven upon a round bottom or Tile, called by the French *Culotte*, already mentioned above; cover it with a piece of Brick, and bury it in Charcoal mixt with kindled coals, that they may take fire by degrees, and so by little and little season the Crucible; and when the fire is well kindled, and that the Artist shall see the Iron or Steel to be in a very red and clear ignition, so as to draw near the white glowing; add then to it ℔ j. of well chosen Antimony in powder, then cover

cover again the Crucible with the Brick and coals, to advance the Fusion and union of the two matters, and as soon as you shall by frequent inspection perceive them in that state, make ready your Cornet or casting Vessel for Regulus, if you have any, keeping it warm and besmearing it with Wax in the sides towards the bottom, and throw in the Crucible ℥ iij. or iiij. of Niter in grosse powder, very dry and somewhat warmed, that it may the sooner take flame with the sulphur of Antimony, that the fusion thereof may be quicker and cleaner; for as soon as the Crucible is toucht by the Niter, there followes immediately an ebullition of the matters with a noise and sparkling, caused by the internal ayr of the Niter and the mixture of the Sulphur with the Iron or *Mars*: But the Artist must have a special care to have his Pincers in readinesse to draw the Crucible, and pour the melted matter into the Regulus Pot, as soon as the ebullition is over; otherwise there would a crusty substance gather on the top, which might hinder the casting of it, and is of very hard and difficult fusion. As soon as the matters are in the Regulus pot, strike upon the brims of it with a Pestle or Hammer, to cause the Regulus the better to separate it self; but if you want this Vessel for casting your Regulus, you need only draw your Crucible from the fire, and striking softly upon the brims of it, let it cool. It would nevertheless be necessary to be furnished with this Vessel in a Laboratory, because you might thereby preserve your Crucible from the necessity of being broken, and so preserve them for other fusions and the purification of your Regulus, besides that it will save much time and fire, which otherwise must be unnecessarily spent; for your four meltings or fusions may be made consecutively in one and the same Crucible: either of these two Vessels being cooled, either turn upside down the Crucible and stamp or beat it against the ground to make the Regulus come out, or break the Crucible, and therein shall you finde an uniform lump seemingly: but knock upon it about the middle, and the Regulus which is in the bottom will forsake the feces that are uppermost, and are nothing else but the Iron Sulphur, and terrestrial impurities of the Antimony, with very little remaining of the Niters, which also frame by themselves a kind of close compacted lump, which every day dissolves it self in the ayr into a dry powder, resembling smutty

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and terrestrious Filings of Iron. The Regulus being not pure enough in the first melting, you must therefore beat it to powder, & add to it ℥ iij. of antimony in powder to accelerate the melting thereof, and put it in a new Crucible, and cause it again to flow in a wind-Furnace, and when it shall be in fusion, throw into it ℥ ij. or iij. of very dry Niter and warm'd into a powder, and there will happen yet a small ebullition; throw it immediately into the casting Vessel, & knock upon it; separate the Regulus from the blackish and impure dregs, and it will come out twice as pure and white; proceed thus the third time, and the dregs will be either more gray or whitish, which is a sign that it begins to draw nearer the state of its purity: wherefore proceed to the fourth fusion, and alwayes with new Niter dry and warm, giving a very strong fire this last time that the Niter may be in very good fusion, and draw to the colour of a Partridges eye; cast it quickly, & with nimbleness stir the casting Vessel, being first well warmed, and turn it round, and you shall have a *Stellate* or *starry Antimony* to the very Center, white as silver, and flowing already something of its solar Tincture: for the Niter which was in fluxion on the top of it is all yellow, an infallible sign with the star which appears on the top of it, that the Regulus hath attained the true point of its purity and perfection, to be freely used in the preparation of those noble Remedies which it is capable to yield.

If the Artist will raise his curiosity so high, he may frame Cups and Pots with this Regulus, as also Pellets or small Globes, and he will have that which they call *Pocula perpetua*, and *Pilulæ perpetuæ*, the Purgative and Emetick vertue whereof is never exhausted; though Wine be every day put in infusion in the Cups, or the Pellets or Globes swallowed down every day, which may be taken up again after evacuation, and being washed, made use of with as much efficacy as before, as by daily experience it is found true, which doth evidently prove that Antimony doth as much or more participate as any other Mixt, of light and heavenly Fire, whose vertue never decreaseth, though he imparts every day his Rayes and bountiful warmth: so is it only by an emanation or irradiation of the inward vertue that these Cups and Pills do work, and it is also by irradiation and influence from above of the igneous and sulphurous quality of their substance, that their vertue is miraculously, as it were repaired, and again supplyed.

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Fire, whose vertue
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, and it is also by
eous and sulphurous
miraculously, as it were

a the Table.
b the Glasse with its up-holder by which ye may rayse it higher or lower.
c the Stone or Plate on wch ye Antimony in powder is layd.
d ye Artist ye orders ye Glass & stirs about ye Antimony.
e ye light yt is centerd by the Glasse.

The Solar Calcination of Antimony.

WEE have demonstrated above, that antimonial Calcination made with Niter, were opened by it, purified and fixed, which could not be done unlesse this salt did partake altogether of the nature of Light, which is found to be corporified in it: but we must shew pathetically here, that the Sun, Father and spring of the Light, by whom Niter is generated, doth purifie and fix Antimony much better, and with more efficacy then Niter can do; which is a kind of Calcination Philosophical indeed, and worthy a son of Art, whose curiosity leads him to search and pry into the wonders of Art and Nature; But those that are ignorant of the noble Works and rare Effects of Magical and Celestial Fire, drawn from the Rayes of the Sun by the help of a Refracting or burning-Glass, shall scarce believe that which we have to say, and are to demonstrate upon this Subject.

For this noble and miraculous Fire preserves and encreases the substance of Antimony, whereas common fire and salts do alter and destroy it, which truth we make good thus: Take xij. grains of Antimony, either mineral or common, grind it into an impalpable powder, and calcine it in common fire, or by salt, it yields a smoaky vapour of an unpleasant smell and colour, which is heavy: for if this smoak was kept in a sublimatory Vessel, there would be found Flowers, which are nothing else but meteoriz'd antimony, as we will make it plain when we come to speak of the sublimation of this Mineral; which is the cause that the Antimony is found to be decreased of five or six graines, when the Calcination is driven and brought up to a gray or white powder, which has yet a purging and emetical quality: but if you calcine the same weight and proportion of Antimony with a Refracting or burning-Glass, which doth concentrate the light of the Sun-beams to make it work upon the matter, this Mineral doth yield also vapours as when it is calcined by common fire, and consequently it were rational that it should decrease to the same proportion; but it happens otherwise: for the Calcination

being often reiterated, and the Antimony turned into a white powder, you shall finde it to weigh xv. graines instead of xij. that were taken at first, and consequently it is encreased in double proportion almost, whereas the vapours which it hath exhaled should have decreased it as much: but that which is yet more to be admired, and lesse conceivable, is, that these xv. graines of white powder are neither vomitive nor purging, but contrariwise diaphoretical and Cordial; which doth cast into admiration not without reason, the most curious and intelligent searchers of Nature, and the wisest Physitians. But this Wonder shall cease as soon as we begin to apprehend and to know, that Light is that miraculous Fire which constitutes the principle of Antimony, and it is the same now that hath prepared it. By which it appears that this noble Mineral hath a kind of natural Magnes in it self, which makes it capable to attract from the highest Heavens this noble kin and similar light, by which it is produced and supplyed with its vertue. This Solar Calcination is then performed in the following manner.

Let the Artist have a burning-Glass of three or four foot Diameter, made with two concave pieces of Glass joined together, the two concavites within looking one towards another, the convexity without, and let there be a hole to fill up the concave space with clear water; for this Glass will concentrate more beames, and calcine better then if it was all of one piece, and broader in Diameter. The pieces must be well glued together with Ichthyocolla or Fish glew, that the water may not come out again; it also must be fitted upon a Pedestal or Foot, wherein is a Screw to raise and depresse it according as occasion shall require; it must have moreover a pair of green glass Spectacles to help the sight and enable the Artist to lead the edge of the Sun beams upon the Antimony, and move it as it goes on calcining; otherwise the vivacious quickneſſe of this light should impair and ruine the sight; place the Antimony upon a well polished Porphyry stone very smooth, and have a grinding stone ready at hand to grind it when it is turned into crums. The Antimony must be made into the subtilest powder that can be: and a great care must be taken in guiding the light, stirring the matter and grinding it, and so proceed till it be reduced into a white powder, which gathers it

it self no more into crums, neither yields any smoak or exhalation when the light is directed upon it, or when it is put upon a red glowing piece of Iron, which is an argument of its fixedness. The Stellat or starry Regulus may much better be calcined in the common Antimony, and the Diaphoretical Remedy prepared therewith, shall prove much more efficacious and better. The Dosis may be from ij. grains to xij. to be used in all the Diseases we have rehearsed above, and experience will make it manifest, that this Remedy is comparably better and of more excellency then the common Diaphoretick. The Figure here annexed will demonstrate all what belongs to this Operation much more natively and plainly then our Pen can represent it; and so put we an end to the products of the dry Calcination of Antimony, and come to the moist Calcination, which is Precipitation.

Moist Calcination of Antimony.

THere is no need of repeating here to no purpose, what we have already said in handling the Precipitates of Mercury, because it is rather a Calcination then Precipitation; wherefore we send back the Artist to what we have delivered above. We will give two Examples of these pretended Precipitates, that the Artist may the better be informed of all the manners of working, which may elevate his mind, and raise it to attempt higher and more important matters of which these preparation are, to speak properly, but the Rudiments.

The first Precipitate of Antimony.

℞ As much as you will of well chosen Antimony, make it into course powder, and throw it in a long, broad neck Matras, and by little and little pour upon it good Regal water, agitating and stirring softly the matter, until the Menstruum goes above it three fingers high, but take care in the working of the Dissolvent; put the Vessel to digest in ashes in an equal heat, until you see the Antimony fallen to the bottom in the form of

a-white Calx; then pour all into a Retort, and draw off the Regal water by distillation in sand, until the said powder in the bottom becomes very dry; then digest it in distilled Rain-water, and edulcorate it well with new water, then dry it gently; after this, having put the same in a Crucible, reverberate it for the space of six, seven or eight houres, or until the colour be changed and exalted into a red: if you will spare fire and labour, you may put this Calx in a Crucible covered and well luted, and put it in a Potters Furnace to reverberate during the time his work is a baking. This Precipitate doth very happily and successefully purge the yellow and mordicant, or harsh serosities, lurking for the most part in the bottom of the stomach and adjacent parts, which it does very well both upwards and downwards, not that it is of it self violent or purging: for it doth otherwise operate in those that are not stuft with those superfluous serosities, and have no vice or defectuosity in the fermentation of the Ventricle: for it works with them by Sweats, Urine, or insensible transpiration. The Dosis may be from *gr.* j. to viij, in cordial Conserves, or gelly of some Fruit.

The second Antimonial Precipitate.

℞ As much as you will of well chosen Antimony, grind it to powder and put it in a Matrass, and pour upon it Regulus water two inches high; put the Vessel to digest in ashes, and stir it from time to time to facilitate and advance the dissolution: then draw off the dissolution by decantation very cleanly, or filtrate it in a glass Furnace with Glass grosly beaten: this filtration pour into a Retort, and distil softly in sand to a dry bottom; pour upon the remaining powder distilled Rain-water, and digest it in *B.M.* until it hath contracted a red Tincture; separate the Tincture, and proceed in the digestion and extraction with new water, until it drawes no more colour; all these Tinctures gather together and filtrate, then draw off the water again in ashes by a slow distillation in a Cucurbite to a dry bottom: pour upon the remainders very good distilled Vinegar, and extact with it again until it will take no more of the colour; filtrate the Tincture, and throw away;

away the white remaining feces: draw off the Vinegar in ashes slowly to a dry bottom, or rather to the consistency of a thick Syrup, upon which pour tartarized spirit of Wine; lute well the Vessel with its Blindhead, and put it to digest and extract in the vaporous Balneo during three weeks, and you shall have a faif and red Tincture, which you must filtrate again and throw away the feces; then draw off the spirit of Wine in the slow heat of *B. M.* to a dry bottom, and you shall have a Powder or Precipitate, which is none of the least preparations which Antimony doth yield. It is a soveraign Remedy against the Pocks and Scurvy; but above all it excels all other things to dissolve congealed blood, and resolve and evacuate all inward Impostumes, and the matter contained in them without any danger. The Dosis must be from *gr.* ß. to iv. or v. in some appropriated water, or some cordial and stomachical Spirit, or in Bolus in some Confection or Conserve.

The sublimation of Antimony.

THis is one of the most necessary operations to open the Body of antimony, and to begin the maturation of the crude and indigested substances that are hid in it. And the Son of Art must know, that when *Paracelsus* speaks of reducing Antimony into alkohol by the preparation of his *Lili*; that his meaning is not to have it ground upon the Marble stone to reduce it into an impalpable powder; but that he understands another much more Philosophical Trituration, which is the meteorizing and exalting of it into vapours by the help of fire, which is nothing else but its sublimation; for you must observe, that this great and wonderful Artist requires that all the Body of Antimony should passe, without leaving behind the least small portion of its sulphur and Mercury, which it can do by no other way but sublimation. The sublimation yields also the Flowers of Cinnabar, whereof we shall speak hereafter.

How

How the Flowers of Antimony are to be prepared.

PUT an earthen unglazed Pot of ſtrong, reſiſting and laſting ſubſtance againſt the violence of the fire in a wind-Furnace; let there be four holes (as Regiſters) about the pot to draw the better the fire; upon this pot lute another, which may encompaſſe the brim of the undermoſt, and let the bottom of it be bored with a hole of three or four inches Diameter, and let it have alſo another hole in the ſide of about an inch Diameter, that the antimony may be thrown that way into the firſt pot; after this, fit upon theſe two pots three or four more one on the top of the other, with a hole in the bottom as the ſecond; but let the bottom in the laſt be no bigger then to paſſe your finger through, that it may be ſtopt with a little knob of earth. Have alſo an earthen ſtopple very exactly fitted to the hole through which you are to throw the Antimony. The pots being well luted, and the Lute dry, give it firſt a gentle fire, then encreaſe it until the firſt pot be glowing red on all ſides; then begin to throw in it ℥ ij. of antimony in powder, and not above at once, renew with as much every half quarter of an hour, and alwayes maintain the fire that the pot may grow more red: you may keep doing this as long as you will, according to the quantity of matter you intend to prepare, and you ſhall finde your antimony to be ſublimated into gray, white, yellow, and ſometimes red flowers, according to the managing of the fire. The Flowers are not much in uſe for purging ſick perſons, by reaſon of their violent Operation, for they are properly the ſulphur of Antimony, but they are fit to prepare other Remedies after they have been duly corrected. They may nevertheleſſe be adminiſtred from ij. grains to iv. or vj. to the ſtrongeſt conſtitutions, in Conſerve of Roſes or infuſion of white Wine. But they that will make uſe of the flowers of antimony without fear of their violence, muſt ſublimate them as we ſhall now teach.

Flowers

Flowers of the Regulus of Antimony.

WEE take for this Operation Regulus of antimony, because it is already deprived of the most part of his impure and foul sulphur; and moreover, because the salt armoniack added in this Operation, carries only along with it the purest sulphur and Mercury of the antimony. ℞ then ℔ ß. of fair antimonial Regulus, and as much of very pure armoniack salt, make them into powder each severally, and mix them exactly; then put them in a Retort in sand, cover it with its still-Head; and fit a Matrass to it for Recipient, lute and give it fire until all what may ascend be ascended. Then take the Flowers which will be of a yellow colour, and edulcorate them with distilled Rain-water, and you shall have an excellent Remedy, much lesse violent then the plain Flowers; it is administred to mad or maniack melancholy Persons, and those that are disturbed with Quartan agues. The Dosis ought to be from ij. grains to vj. in Conserve of Roses, or infusion in some fermented Liquor.

Note, that if you put in fluxion the plain antimonial Flowers, with the double proportion of their weight of very pure Salt-peter, in a Crucible in the open fire, and edulcorate them afterwards, then digest them in spirit of Wine the space of fifteen dayes, and then set the spirit of Wine burning upon them, there remaines a Diaphoretical powder, which is miraculous for purifying the blood; the Dosis of which is from iv. to x. or xij. grains. But as the plain and white Flowers of antimony, are an admirable Remedy in the most rooted Diseases, and that their violence hinders the free and more frequent use thereof, we think fit to give some Directions for the true correction of the same.

The

The correction of the Antimonial Flowers.

℞ ℥ j. Of very subtile and white antimonial Flowers, mix them with ℥ j. ſ. of the ſalt Tartar of *Sennertus*, put this mixture in a good Crucible, and with a ſtrong fire melt then in a wind-Furnace, and they will turn to a red lump: which reduce to powder in a hot Mortar, adding to it diſſoluble Magiſtery of Pearls and Coral, of each ℥ j. ſ. put this powder in a Matraſs, and pour upon it aromatized ſpirit of Wine four fingers high, and having ſtopt the Matraſs with another oppoſite or a Blindhead, let it gently digeſt in aſhes the ſpace of three natural dayes, then pour all into a ſmall Cucurbite, and draw off the ſpirit of Wine to a dry bottom, in the ſlow heat of *B. M.* and you ſhall have a well corrected and pleaſant Antimony, which keep for uſe in a well ſtopt Viol, otherwiſe it would melt and diſſolve in the ayr. It is exhibited in Conſerve or in Wine, from iv. grains to xvj. againſt all inveterate Diſeaſes, chiefly againſt the ſtrongeſt and moſt ſtubborn impreſſions of Melancholy, intermittent Feavers, and all kind of obſtructions. It works variouſly according to the matters it meets with in the ſtomach: for it ſometimes provoks vomiting, but not alwayes; it purges by Stools, Urines: but the chief and beſt operation thereof is performed by inſenſible tranſpiration, becauſe it ſtrengthens by the irradiation and emanation of its vertue all the natural digeſtions, and cauſes the internal *Archeus* to drive away or expel from the Center to the Circumference, all what is hurtful and obſtructive to the œconomy of Health and Life.

How to prepare the Aromatized Spirit of Wine.

℞ Galanga, Gloves, Cinnamon, Mace *ana* ℥ ij. Saffron ℥ j. ſ. Lignum aloes ℥ j. Ambergreeſe ℈ j, and Musk vj. grains, reduce all to powder and mix them; then extract their Tinctures in a Blindhead or double Veſſel with good alkoholized ſpirit of Wine; draw

draw off the Tincture and proceed in the extraction, until the spirit of Wine drawes no more, join all together, and keep it in a bottle as a great Cordial and strengthener of the brain and stomach; as likewise to help digestion, and to correct Chymical Remedies, and particularly those that are extracted from Mercury and Antimony. We will not speak here of the Cinnabar or Vermilion of Antimony, though performed by sublimation, because we intend to speak of it hereafter, when we shall come to treat of the distillation of antimonial Butter, and the glasical Oyle of this Mineral; for these operations cannot be made asunder.

The distillation of Antimony, which yields the Vinegar or acid Spirit, the Oyle and Spirit of Antimony.

THE Son of Art must here be armed with patience for the distillation of this antimonial Vinegar; for besides that very little can be extracted, much time must be spent besides in the Operation, and much heed and circumspection used; but as he shall finde in Authors that this acid doth extract its own Body, it is necessary he should be taught a good mechanical way to make the distillation thereof: which is performed in the following manner.

The distillation of Antimonial Vinegar.

℞ Mineral Antimony coursly beaten to powder, and put about ℥ j. in earthen pots made in the form of small Cupels, which must be placed Checkerwise one above the other, in the lower part of a capacious earthen Retort cut in two pieces, and having fitted again the upper part to it, lute it well, and bind with a thick wyre; then place it in a close Reverberatory, and having fitted to it a large Recipient, give it a good fire the space of twenty four houres, as you would do for the distillation of the spirits of Salt or Vitriol; then cease the fire, and opening the Vessels, keep the acid spirit which is come forth but in very little quantity; then put new antimony in the small Cupels and begin anew, and thus proceed until you have enough of this spirit for the work you intend,

tend, or for physical uses. But you must ever set apart the Mineral antimony after it hath been distilled, and expose it to open ayr: for it will attract from the heavenly influence of the stars and the spirit of the ayr, enough to supply again a new distillation at the end of six weeks or two months; and thus ℔ vij. or viij. of Mineral antimony will suffice for the distillation of this Spirit, and you will never be unprovided for your use in the same Operation. This acid Spirit is used for extracting the Tincture of its own Body: wherefore the Artist must not be mistaken when he reads in the most famous Writers, and celebrated Authors which have treated of Antimony, that it is to be extracted with distilled Vinegar, for he must not understand this of common Vinegar; but he must know that their meaning is of vinegar extracted from Antimony without addition. This acid is singular to cool all intempery of the parts of the Body, and chiefly ebullitions of blood, wherefore it is with a very happy success administred in continual Feavers, malignant, hot and putrid Agues; for it penetrates the body, and gives a great refreshment to poor Patients, you must mix some of it with *alleluya water*, or only with common water, and a little of the syrup of juice of *alleluya* or Wood-sorrel. The Dosis must be to a pleasant sharpness and acidity; Besides its internal use, it is wonderful outwardly applyed: for it takes away the fire and inflammation of burnings made with Gunpowder, if it be mixed with salt of ☿ in water, and applyed with wet Fillets, or be made into a *Nutritum* or Liniment with Oyle, to anoint therewith the burnt parts, and thus you shall not fail to see some very notable Effects of.

The distillation of Oyl or Balsom of Antimony.

℞ Equal parts of white Sugar-candy and well chosen Antimony, grind them each severally, and being exactly mingled, put them in a Retort, and put over M.j. of very clean Hemp, to hinder the body of the matter to rise and passe in the Recipient, when it begins to feel the heat and make an ebullition, which cannot otherwise be hindered then by this Tow. The Retort, place in a close Reverberatory, and fit to the same a good Recipient, be-

beginning the fire slowly, and encreasing it by degrees, until you see no more drops nor vapours come over the Helm. Let the Vessels cool, and pour in a Matrass what you shall finde in the Recipient, add to it tartarized spirit of Wine three fingers high, and digest them together in the vaporous Balneo the space of three or four dayes, filtrate all in the cold through a Cotton in a small Cucurbite, which having placed in *B. M.* draw off the spirit of Wine, keep this Oyle or Balsom in a Viol for use: for it is an excellent Balsam, and almost miraculous for the sudden cure of new Wounds, Ulcers, Contusions, if it be only applyed upon, or in the same with Feathers or Cotton. But it is besides a surprising Remedy against intermittent Feavers, and chiefly against quartans; for the cure of which are prepared the following Pills.

Pills against Agues.

℞ ℥ j. of antimonian Balsom, ℥ ſ. of Aloes purified by the juice of *Cardus Benedictus*, and reduced into an Extract, ℥ ij. of Ambergrease, ℥ j. of Tincture of good Saffron, thickened and evaporated into a thick syrup: reduce all into a lump or masse fit for Pills, which some do call *mercurial Laudanum*, and good against Agues. The Dosis must be from iiij. *gr.* to xvj. in Conserve of Marigold Flowers, or Roses: they gently purge downwards, and sometimes provoke sweat, or work by insensible transpiration.

Distillation of the Butter or icy Oyle of Antimony.

IT is necessary we should deliver some Notes upon this Operation before we describe it: for it hath been made so many wayes, and Authors entertain to this day so various opinions about it, that an Artist will be much put to it, to know what to believe. For they have first been of opinion, that the sublimated Mercury did contribute very much to the purging vertue of such Remedies as are prepared with this Oyle, and that the substance of the Mercury did come over the Helm and make part of this Oyle,

which nevertheleſſe is neither true nor probable, as the ſublimation of Mercury with Sulphur and Antimony doth peremtorily evince, even as the remainder of the Mercury which is vivified again into a Body of running Quick-ſilver, either in the Retort or Recipient. But if this Oyle be made with the Regulus of the Antimony, there is no ſublimation at all, becauſe the Regulus is deveſted of its external and courſe Sulphur; but all the Mercury is quickened again in its own weight, except the ſpirits of thoſe Salts that have forſaken him to work upon the Antimony, and diſſolved it to convert it into Butter. But the proof is more convincing yet, if the Sons of Art will take the pains to receive that Emetical powder, which is made from this Butter into a Regulus by the help of Salt, Tartar and Niter, by which it appears that this powder is nothing elſe but pure Antimony. And the laſt and ſureſt proof is, that this Butter of Antimony may be prepared without the mixture of ſublimate Mercury: for if you take only Vitriol, common ſalt, and Antimony, you may draw an icy Oyle which will be of the ſame nature of that which is prepared with Sublimate, except that it ſhall not be ſo ſubtile and penetrative, the ſpirits of the groſſe ſubſtances being not ſo capable of penetrating or well diſſolving the Antimony, as are the ſpirits coagulated with corroſive Sublimate. The ſecond Note is concerning the Doſis of the Sublimate: for ſome do take equal parts, others the double, and others more or leſſe; but as a true Son of Art muſt perform his operations without Heſitancy, and with a real knowledge of the matters he works upon, and of their reciprocal action, he muſt lay as an indubitable Axiome and truth, that the Diſſolvent which is the Agent, muſt ever be predominant in weight over the diſſoluble ſubſtance, and ſo he ſhall never fail to work with ſucceſſe, if he takes three parts to one. Some do rank this Work amongſt the Mercurial Operations, and do call it *Mercurius vitæ*, or *Life Mercury*, but we did chuſe to put it amongſt the preparations of Antimony, for the reaſons above declared. It is thus prepared:

℞ ℔ j. of well choſen Antimony, and ℔ iij. of corroſive Sublimate, very pure and chryſtalline, put them into powder, each ſeverally, and mingle them together; then having poured this mixture into a Retort, three parts whereof at leaſt of the four muſt

must be void, and fit a Recipient with a narrow Neck, that the Nose of the Retort may not come into this Neck above an inch, for the need there is to cause the icy Oyle to melt and flow when it coagulates it self in the said neck of the Retort or of the Recipient; lute the joints only with paper and Meal-pap, and give it an open fire gently by degrees, until the vapours and drops begin to ascend, and so keep it in that state until some matter begins to sublimate on the top of the Retort, for it is a sign that the Cinnabar and Vermilion begins to rise; then take off the Recipient, and substitute another, because that which should still down, might in some kind spoil and prejudice that which should be contained in the first: this done, encrease the fire vigorously, and even encompasse the Retort to the top with burning coales, placing them above gently, to drive all the sublimation into the neck of the Retort, and the rest of the Mercury which shall not have sulphur enough to be coagulated into Cinnabar shall quicken again, as it will appear; after the sublimation is ended, separate the Cinnabar from the running Mercury, and keep this last for the same uses as you do common Quick-silver. But the Cinnabar may be used for preparing Trochisks, to perfume those that shall be in a course of cure of the Pocks. They are also used in Pills in Venerean Diseases, and all the dependances of it, because this Antimonian Sulphur which hath cleft to the Mercury, and hath coagulated it, is of a much more exalted Vertue then common Sulphur, insomuch as the one joined to the other, doth purifie together the masse of the blood, and hinder all corruptions which may be generated in the parts dedicated to copulation. The Dosis must be from vj. graines to xx. in Pills or Bolus, with *Chian* Turpentine, *Peruvian* Balsom, or extract of yellow Amber or Karabe.

Pour the icy or glacial Oyle which is in the first Recipient into another Retort, after you have caused it to melt in a slow heat; the Funnel also must be hot that nothing may coagulate, make all what is in the neck of the Retort which receives the substance to flow, that there may be nothing in it but very pure; this Retort place in sand, apply a Recipient to it, which may be dry and clean, and rectifie it in a graduate heat until nothing more will flow from it, and if the encompassing ayr should happen to con-

congeal the distilling Liquor, cause it to melt with a well kindled coal, drawn by degrees near the neck of the Recipient and the Retort. The Rectification being ended, put the third part of what is distilled in a Viol, which shall be the ice or glacial Oyle of Antimony or its Butter, which hath no other use but for outward applications, to hinder Gangrenes and the growing of dead flesh, the dead part being only rubbed and besmeared over, either with Cotton wooll or a Pencill. The same may be done also upon pestilential Boyls, which it will dead immediately, so as the scar easily will separate from it, without any greater mortification of the flesh; and moreover the cure is far easier: this Oyle chiefly is very useful for Surgeons to make Cauteries or Issues on a sudden, hinder the rottenesse of bones and advance the exfoliation, wherefore it is also a very convenient Caustick to bring to perfection the cure of moist and weeping Fistula's; the two other parts are fit for Emetical powder and mineral Bezoar, as we shall say hereafter.

How the Emetical Powder is to be prepared.

℞ Half of what was left of your glacial oyle of Antimony, and cause it to melt if it be coagulated; if not, pour it just as it is in a pan, where there may be about ℔ iij. of distilled Rain-water, and it will immediately precipitate into a Body white as snow, because the salts which did hold fast the Reguline and Mercurial part of the Antimony in the dissolution, join now to the water which is their Dissolvent, and so forsake the Body of the Antimony, even as they had forsaken the sublimate Mercury in the foregoing distillation. The precipitation being ended, stir all with a wooden Pestle very clean, to join exactly the saline spirits with the water, then let it rest, and the water being very clear, separate as much as you can by decantation without stirring the bottom and keep the water by it self; then pour new water until the pan be full, and so proceed in the Lotion till the water comes off insipid; then separate all the water by filtration, and dry the powder betwixt two papers very slowly, and so shall you have an Emetical powder white and pure, which by some is called *powder*

of

of Algarot, from *Algorotto* an *Italian*, which is said to be the Inventor thereof: others improperly and falsly call it *Mercurius Vitæ*, or *Life Mercury*. Some others do honour this Powder with the name of *Angelick powder*, or of *the white Eagle*, by reason of its rare and precious vertues. The Dosis may be from ij. *gr.* to vij. or viij. It is ordinarily used to cleanse and purge away all the hurtful and peccant humours and matters from the body, and chiefly in the first Region, which this powder doth evacuate by vomiting and stools; wherefore it is often used in the Plague and malignant Feavers, diseases in the Head, Pocks, running pains, cure of malignant Ulcers and Dropsie, wherein it works for the most part without provoking to vomit.

We have said, that the first water in which the precipitation hath been made was to be set apart, because it is impregnated with the vertue of those spirits of salts which were used in the sublimation of Mercury, and are discovered by their sharp and acid taste. If the water be drawn off by distillation in sand, until it be reduced to three or four ℥ of Liquor, you shall have that which by Hermetical Philosophers is called *Philosophical spirit of Vitriol*, very efficacious and of singular vertue to put in Julaps and Drinks of feaverish persons, and of such as are troubled with Megrims: but above all it is of wonderful vertue for inveterate pains of the Pocks, because it evacuates and drives away sufficiently those malignant and sharp serosities which do prick the membranes and all the nervous and sinuous parts of the Body. And if it be not distilled, this water must be kept and mixt in the Drink of such as are afflicted with the Pocks or Dropsie, to such a proportion as to give it a pleasant sharpnesse, and you shall see unexpected effects, because these saline Spirits have kept yet in themselves some Character and Idea of the vertue and efficacy, both of Mercury and Antimony. They that will prepare a lesse violent Emetical powder, and a more efficacious Mineral Bezoar, must distil their glacial oyle with good antimonial Regulus, but they shall then have no Cinnabar.

Pre-

Preparation of the Mineral Bezoar.

℞ The last parcel of your antimonial Butter; which having weiged, put it in a capacious Matrass, and then throw upon it its equal weight of very good spirit of Niter, drop by drop in the beginning, by reason of the quick action of this Spirit upon the matter, and of the subtile and strong vapours issuing upon a sudden from the Vessel, which might be hurtful to the Artist; thus proceed by little and little until you have put all in; and after the dissolution is ended, & the Liquor begins to look clear and defecated, pour it into a Cucurbite, which place in sand under a Chimney, and let the spirit vapour away to a dry bottom: which done, pour again as much spirit of Niter as before, but then the action will cease, because the foam and froth of the Dragon is already mortified by the spirit of the infernal *Cerberus*; make it likewise evaporate to a dry bottom, and pour again the same weight (of spirit of Niter) for the third and last time, and evaporate it also, until what remaines in the bottom of the Cucurbite becomes fair, white, dry, brickle and insipid; but in case there should remain yet some pleasant sharpnesse in it, it can be of on prejudice: wherefore it will be needless to encrease and urge the fire higher, but contrariwise take off the Vessel and let the matter cool, which is your Mineral Bezoar; this put in a Viol to keep for use. It is a great Alexitery, which works against all manner of venom, and from this excellent vertue it took the name of *Bezoar* by excellency, to which was superadded the name of *Mineral*, to difference it from *animal Bezoar*, to which is attributed also a great power and faculty to resist poyson; but it comes in no way near the goodnesse or vertue of our Antimonial Remedy, which possesses yet many other vertues and essential proprieties, by reason of the solar Sulphur which is in it, the efficacy whereof is not to be exhausted: for this Rare Medicine doth potently expel by Sweat and Urine, but chiefly by insensible transpiration, all the hurtful and poysonous humours lurking in the bodies both of healthful and sick persons, and especially in all Diseases where sweat is absolutely necessary. Briefly, I can affirm with

with a constant truth, that whosoever will make use of it, shall never find himself soon or late disappointed of the benefit and help which he expects. In case the Disease proceeds from the waters and superfluous malignant serosities of the body, such as are those that are predominant in Pockes, Scurvy, Itch and scabs of the skin; the Dosis is to be from ij. grains to xij. and if necessity requires, it may even extend to twenty. But those that intend to make use of it, must have a care to prescribe to their Patients Broths of Veal and Chicken made with *Scorzonera* Roots, and keep their bodies soluble with Glysters of plain newly made Urine, putting every third day in the Broths of their Patient, which is to be taken fasting, ℈j. or ʒß. of salt of Tartar of *Sennertus*. But the Artist must know that *mineral Bezoar*, is properly nothing else but a diaphoretical Antimony, fixed by the spirit of Niter, being before an antimony reduced to Liquor by the ministery of saline Spirits, and so it needed to fix it an ingenuous and fiery Liquor, as the body of Niter doth fix the grosse body of antimony, and that as the Diaphoretick is purer and more subtile, so doth it also work quicker and in a lesse Dosis; they that desire to make use of it, shall have recourse to what we have plainly and without disguise delivered of the vertues of diaphoretical Antimony, And as this Remedy is universal, so may it also be specificated, and appropriated to some parts, adding any of the Metals, as Gold, Silver, Copper or Tin; the eighth part whereof may be added with the Regulus, and fixed with a triple of pure Niter, or distilling the same Regulus with three times as much of corrosive Sublimate, and making thereof the glacial Oyle, which the Artist may fix with three several Solutions and Extractions of the spirit of Niter, and he shall procure by this way that which is called *Diaphoretick*, or *Solar*, *Lunar*, *Venerean*, *Jovial Bezoar*, the description whereof is found in Authors: it sufficeth here to have taught the manner of operation, which is common to all these preparations.

How to prepare the Water or Spirit of compounded Antimony.

℞ Of well choſen Antimony, common Sulphur or Brimſtone, and well purified Niter *ana* equal parts; put them into powder ſeverally, and then mingle together. This done, have an earthen Retort, in the back of which be a gutter or conduit four inches long, and of an inch broad in diameter; this Retort place in a cloſe Reverberatory, ſo as to be encompaſſed and walled in on all ſides, except four Regiſters to draw the fire, and the end of the conduit to throw in the matter; fit to it a very capacious Recipient wherein muſt be ℔ j. of water, and lute it exactly, put the fire under the Retort, and by degrees let it grow red hot; then begin to throw in ʒ j. of the mixed matter by the conduit, and ſtop it immediately, and the Recipient will ſoon be filled with vapours and clouds ariſing from the inflamed matter; be careful not to throw above dram j. at once of this matter, otherwiſe you would cauſe all your Veſſels to flye into the ayre, by the violence of ſo ſudden an inflammation: wherefore I do adviſe the Artiſt to make uſe in this Operation of a firſt Recipient of ſtone metal with three conduits, the firſt whereof ſhall receive the neck of the Retort, and the two others, each a great and capacious glaſſe body called in French *Bellon*, that ſo the vapours may finde more room to extend themſelves in their going out, and neither the Artiſt nor the Operation may run any hazard. Keep up the fire to maintain the rednesſe of the Veſſel, and throw in new matter, as ſoon as the Recipients ſhall grow clearer of themſelves, and go on thus until you think you have a ſufficient quantity of diſtilled Liquor. The Veſſels being grown cold, draw the Liquor out of the Recipient and filtrate it, and diſtil off from it in ſand with a ſlow heat; the water which you had put in the Recipient, which will carry away with it the greateſt part of the Empyreuma of the ſpirit, ke℞ for uſe. This Remedy doth attenuate, cut, ſubtiliate, digeſts and diſſolves all manner of tartarous, ſlimy, thick and viſcous matter, in whatſoever part of the body it be found, be it

it never so strongly rooted and incorporated in it, expelling the same by the appropriated Emunctories, as by Stools, Urines, sweat, and spitting. Wherefore it is of singular vertue against obstructions of Liver, Spleen, Mesentery, Pancreas, Matrix and Hypocondra's, but chiefly if it be actuated with the salt of *Mars*. It is administred during the space of six weeks, in spring water with a little Sugar, to a pleasant acidity and sharpnesse, so that from it is made a kind of true mineral Water, whereof sick Patients may drink as much as they please. This same Operation may be performed with Tartar also, instead of Brimstone: but this last will be more unpleasant in taste then the other.

Liquation or resolution of Antimony.

THis Operation is nothing else but the resolution in the moist ayr, or in a Cellar, of the skin or feces of Regulus made with Tartar, or you must calcine Antimony, Niter and Tartar together, and expose to the ayr, or put it in a cold Cellar what you finde in the Retort. The union of these three substances flowes into a thick and blackish red Liquor, which hath no other use then to cleanse and cure corroding and fætid Ulcers, and chiefly fistulous and hollow ones. For the salts do cleanse and mundifie, and the sulphur of Antimony is the consolidative Balsom.

The extraction of Antimony.

WEE are now at last arrived to the true volatilization of Antimony, to extract the Sulphurs and Tinctures thereof, which are two of the choisest preparations that can be made of it; wherefore we would advise the Son of Art not to be too forward and hasty in this work, but to work punctually as Art shall require, if he will attain to the desired end. We shall then first of all give a description of the strong Lye, with which the sulphur of Antimony is to be extracted; after which we shall teach the Extraction it self; and in the third place the fixation of

the said sulphur of Antimony. Then we will speak of the Tinctures, and of the wayes of extracting the same, giving two several examples thereof, to instruct the better the Son of Art how to proceed in these preparations, which are of the first and highest importance, by reason of their eminent vertues and their great efficacy.

Description of the strong Lye, by which the extraction of the sulphur of Antimony is performed.

℞ Salt of Tartar, Pot-ashes, quick lime and burnt Allom, *ana* equal parts, beat to powder each severally, then mix them with double their weight of fire ashes, which put in a raw, course linnen cloth upon an inverted sieve, placed upon a large earthen Pan; then pour upon it Rain-water somewhat more then lukewarm, cohobate the water ten or twelve times to impregnate it well with the salts, then filtrate it through paper, that no impurity may remain with it. Mercury may be purified with it, as well as the sulphur of Antimony extracted, which is performed in the following manner.

How to extract the sulphur of Antimony.

℞ ℔ j. of antimonial Cinnabar, beat it to small powder, and throw it in an earthen glazed pot; pour upon it of the strong Lye to fill up the third part of the pot; let them boyl together the space of three houres, or something more, putting still new warm Lye in the room of that which vapours away by the action of the fire; separate by decantation the Lye from the flowing Mercury which is in the bottom of the pot, and let it rest, and the sulphur of Antimony will settle by degrees in the said bottom of a fair red colour; separate the Lye from it softly, and wash it with distilled Rain-water, until it comes away tasteless, cause it to dry gently; and thus shall you have the true and genuine sulphur of Antimony, whereof the following Panacea is made.

Panacea

Panacea of the true antimonial Sulphur.

℞ Some of this antimonial Sulphur and very pure Regulus, *ana* ℥ j. beat them each severally to powder, and mingle exactly together, this mixture put in a Retort, and pour upon it ℥ iij. of well rectified oyle of Sulphur, or as much very good oyle of Vitriol, digest them together in a very slow heat the space of eight dayes; then place the Retort in sand and distil it to a dry bottom, cohobate that which comes out upon the feces again two times, and last of all drive the fire as high and quick as you can the space of xij. houres, after all the moisture is extracted. Or else it will not be amisse to break the Retort, after all the liquor is come over the Helm, and grind the matter found in the bottom, to reverberate afterwards four or five houres upon a Test under a Mussel, to drive away all the impressions of acid and corrosive Spirits. That which hath been reverberated put in a Cucurbite, and cohobate four times upon aromatized spirit of Wine, prepared in the manner we have taught above. This Remedy may be administred single from j. grain to viij. in cordial Confections or Conserves; but it is much better if mingled with twice as much dissoluble Magistery of Coral, and given from iiij. to xx. grains in the same Confections or Conserves, prescribing upon it a little of good Malmesy, or some other Wine of quick and noble Spirits. This Medicine hath few to be compared with it, in driving by sweat whatsoever corrupts and staines the masse of the blood which it perfectly doth purifie, insomuch as it may be thought fit and serviceable for all Diseases that require a sensible transpiration, and chiefly Leprosie, Pocks, Scurvy, and noisome eruptions in the skin of what nature soever: the Dosis must be repeated according to the fixed nature or volatility of the Disease: for it equally serves against colliquation and obstruction, because it strengthens the Spirits, which are the chief Masters and Directors of all the functions of life and health. Particularly, it is an admirable specifick in all pestilential, epidemical and malignant diseases; for in such it doth much more excellently shew its power and vertue.

Of

Of the Tincture of Antimony.

BEfore we come to any particular deſcription of the Tinctures, we muſt give ſome general notions to the Sons of Art which will much contribute to their information, and make it appear that it were much better to adminiſter without then with Wine, thoſe Remedies which are extracted from Antimony, becauſe that the moſt volatile part of the Wine doth add ſtill to its vomitive faculty, and opens it too much inſtead of cloſing and fixing the ſame. They muſt then obſerve generally, that whenſoever they define an extraction of Antimony with intent to make it a Cordial, corroborating and diaphoretical Remedy, they muſt never begin either extraction or diſſolution by ſpirit of Wine, neither by any other volatile ſulphureous ſpirit analogal to it; but rather it muſt be done with ſome acid ſpirit of a concentrating and fixative vertue, and after this reſerve and uſe the ſpirit of Wine for the laſt extraction. Inſomuch as it may be ſaid, that the Tincture of Antimony is nothing elſe but a diſſolution of ſome part of the ſame Antimony, and the extraction of its internal and fixed ſulphur. The firſt operation is performed by the help of an acid ſpirit, and the ſecond by the mediation of the ſpirit of Wine by digeſtion and circulation, as we will ſhew in the following practice.

The firſt Antimonial Tincture.

WEE have taught heretofore the true correction of Antimony, and the way to deprive it from all the foul and impure ſulphur which is in it, when we ſhewed the manner of preparing the Glaſs thereof without addition, wherefore we ſhall not repeat it over again here. It will ſuffice to adviſe the Artiſt, to take ℔ß. of that Glaſs made without addition, fair, red, and tranſparent as an oriental Granate, and beat it to an impalpable powder, grinding it upon the Porphyrie ſtone, this powder put in

a Matrass, and pour upon it spirit of *Venus* four fingers high; stir it nimbly in the beginning, then put it to digest, dissolve and extract in ashes in a slow heat; and your spirit in three or four dayes will contract a fair, red colour higher then *Burgundy* Wine; draw off this spirit by decantation, and pour new in the room, to extract again the space of three dayes, and thus proceed three times; then filtrate the Tinctures, and put in a Cucurbite in *B. M.* and draw off the Menstruum in a slow heat to the consistency of a thick Syrup, upon which pour three fingers high of good alkohol of Wine, and stop the Cucurbite with its Blind-head and lute it well; then put this Vessel in a vaporous Balneo, and let it extract, circulate and exalt there; the spirit will by degrees be impregnated with the central and solar sulphur of Antimony; when it is well and sufficiently coloured, take it away, and put new in the room, and thus continue until the spirit of Wine tinges no more, then join together and filtrate all the Tinctures; the filtrated Tincture put in a Cucurbite in the vapour of Balneo, and draw off three parts of the liquor, and keep the rest as an excellent and noble Tincture endowed with infinite vertues; for it is a soveraign Remedy against all inveterate obstructions of the Liver, Spleen, and all other parts of the inferiour belly or ventricle, as also against obstructions of the Lungs, stopping of monthly Courses, Green-sickness, both kinds of Jaundice, Dropsie, Pthysick, Asthma or short breath, Pleurisie, Cachexy, Hypocondrical Melancholy; against all manner of Ulcers both internal and external, Leprosie, Plague, Pocks both great and small, all kind of Itch and Scabs, Measels, and generally whatsoever obstructs or disorders the course of health. It purges and drives away whatsoever is hurtful to the body by Sweats, Urine, spitting or salivation, and insensible transpiration. The Dosis may be from ij. to ix. or x. drops in Spanish Wine, or some other analogous Liquor, as strong Hydromel, Mead or Malmesy; they that will make use of this Remedy must take it in the bed, and patiently expect sweats; the use may be reiterated every third day for those that are actually sick, and once in a month for those that take it by prevention, and to unburthen Nature from the superfluities of ill digestions. And as these Tinctures can hardly be transported from place to place with-

out

out danger, the rest of the spirit of Wine may be evaporated to a consistency of concocted Hony, adding to it ʒ ij. of powder of Hartshorn, philosophically prepared to every ʒ j. of the thick Syrup, and so shall you have an admirable Confection or Electuary, which may be sent and transported everywhere; the Dosis whereof may be from iiij. to xx. grains, drinking upon it the same Liquors above mentioned, or this Confection shall be mingled with a spoonful of one of the said Liquors or Drinks, and a Glass of the said Drinks over it, observing the same prescriptions as before.

The second Antimonial Tincture.

TO attain to the preparation of this Tincture, make first your Menstruum; for whose composition ℞ well chosen Vitriol, common Salt very pure, and quick-lime, *ana* ℔ j. salt Armoniack ʒ iiij. put them each severally into powder, and having mixed them, throw in [a Cucurbite], pouring over it ℔. iij. of good distilled Vinegar; stop the Cucurbite with its Blind-head and lute it, and so make the digestion thereof with a slow heat the space of a natural day; which done, put all in a Retort, and by a very well regulated and graduated fire, draw the spirit thereof in 24 or 30. houres. Weigh what is come over the Helm in liquor, and add as much of dry common salt to it, and rectifie it in a regulate heat, so as all what shall distil may come away fair and clear from it, and nothing of muddinesse.

Then ℞ ℔ j. of antimonial Glass made without addition, and grounded to an alkohol upon the Porphyrie stone; put it in a large Matrass, and pour upon it your distilled Spirit, stir them together, and put them in digestion and dissolution in ashes in an equal heat, and the Glass being dissolved, pour off all what is clear and defecated by inclination, and filtrate the remainder: then put all in a Cucurbite, cover it with a Still-head, lute and place your Vessel in *B. M.* to draw off the Menstruum to a dry bottom in a moderate heat; there will settle in the bottome of the Cucurbite a thick, slow, viscous and blackish matter, which put in the cold Cellar upon a square Glass or Table, to make it flow and dissolve

solve into an Oyle, or to speak more properly, into a red liquor, which will leave some feces on the glass Table. This red liquor pour into a small Cucurbite, and draw off the moisture from it in ashes till the matter be dry, which take away immediatly without delay before the ayr hath got and insinuated it self into it, and put it in a Pellican or double digesting Vessel, and pour upon it of the best alkohol of Wine, dephlegmated upon calcined Tartar, lute the joints and passages of the Vessel, and put it to digest in the vaporous Balneo in sawdust, until the spirit be tinged with a fair, red, high colour, which draw off and put new spirit in the place, and thus go on until the spirit of Wine takes no more Tincture, filtrate all the Tinctures, and draw off the two thirds of the Menstruum in the slowest heat of *B. M.* and keep the rest which is the Tincture, as a rich Treasure for health. It is fit and useful for all the Diseases, to which we related above that the first was proper, with the same precautions and the same Dosis.

But Note, that the Artist must not throw away the remainder of these two Tinctures: but rather keep them to extract the salt thereof, as we shall teach in its place. The Artist must also know, that the red liquor prepared in the cold Cellar, is one of the best Balsoms in the World for curing of Wounds, and all kind of malignant Ulcers be they never so dangerous, but chiefly those that are pocky, and against Nodus's; wherefore let him keep some portion by it self, to have his recourse unto it when there is need.

The Infusion of Antimony.

THe infusion of prepared or unprepared Antimony is no very mysterious busineſſe, wherefore we shall make but a short reflection upon it, and only say that this Operation produces Emetical Wines and Ophthalmick Water. Now Emetical Wine hath several demonstrations in Writers; for some call it *aqua Benedicta* or *holy Water*. Emetical, antimonial Wine, sacred Wine, and so of other names: Some have also made use of matters variously prepared to make this Remedy, as likewise of various Menstruums; for they have taken sometimes antimonial

Glass, sometimes Flowers, sometimes *Crocus Metallorum*, Emetical powder, and even crude Antimony; the vertues of these various preparations hath been extracted, either with Wine, Vinegar, Mead or Hydromel, Beer, Cider, or *aqua vitæ*: Moreover, they have made Extracts, Electuaries, Lozenges and Syrups, so that they have been disguised under any disguise at the arbitrament of the Author or liking of the Patient; The Artist might of all these materials and Menstruums chuse which he likes best; but our advise is still that he should chuse the best prepared matter, and that which hath lesse of impure sulphur in it: Wherefore let him take off the Glass made without addition, and that he may be yet surer of his way, we shall teach the manner of yet better correcting it, and preparing therewith some infusions and preparations, by which it shall appear, that those that cast a disreputation upon antimonial Remedies, were never well aquainted with them, since they may be made more secure and pleasant then the easiest and gentlest purge which may be taken out of Vegetables; and as we have said that Wine did render Antimony too volatile, we will nevertheless shew that it may be extracted with Wine, and yet at the same time deprived from that volatile spirit, which exalts it and advances too quickly its operation.

The correction of antimonial Glass, or Emetical powder corrected.

℞ ℔ xij. of antimonial Glass made without addition, and ℥ iij. ß. of very pure and dry Salt-peter, beat them each severally to powder, then mingle exactly together; after this, put a small earthen pot not glazed in a Furnace upon a round Tile, encompasse it with fire and coals, administring your heat by degrees until it growes red hot, then throw your mixture by spoonfuls therein, and when all the matter is in, let it grow glowing hot without melting, then remove away the pot and take up the lump, which shall be of a yellowish colour, beat it to powder in a hot Mortar, this powder throw in in a Chopine or almost a pint of distilled Rain-water, and stir it without delay, that the Niter might quickly be dissolved, then draw off immediately the wa-

water, and dry the remaining powder, observing this, that you mingle not the courseſt part of the powder in the bottom of the Veſſel, but content your ſelf with the ſubtileſt part thereof; and ſo ſhall you have ſo gentle an Emetical powder, and ſo well corrected, that it may be given either in infuſion or Syrup, and even in Wine to ſucking Children and aged perſons, without any fear of the leaſt accident. The Doſis for Children is from iij. to ix. *gr.* in infuſion in boyling Wine in proportionate quantity, which muſt be filtrated in the morning, and ſo adminiſtred to the Patient. The Doſis for ſtrong and more aged perſons is from viij. grains to ℈ j. with the ſame method and obſervation. But if you will do better, prepare therewith the following Syrup.

The true antimonial Syrup.

℞ ℥ j. of this Emetical powder corrected, and put it in infuſion in *B. M.* in a glaſs Cucurbite, with pound iiij. of well depurated juice of Quinces the ſpace of three or four dayes; after this draw off the clear part of it by decantation, and filtrate the muddy, mix with this juice impregnated with the vertue of Antimony, lib. ij. of Sugar in powder, boyl all theſe to the conſiſtency and thickneſſe of a ſyrup in a glazed earthen pan in the vapour of a Balneo; and the ſyrup being made, add unto it vj. drops of oyle of Cinament, and ij. drops of oyl of Cloves, well wrought before into ℥ j. of Sugar in powder. This Syrup is a noble purgative and Emetick for the moſt tender and delicate conſtitutions, The Doſis is from ℥ ij. to ℥ j. ℥ j. *ß.* to ℥ ij.

The true Emetical purgative Tartar.

℞ ℥ iiij. of the corrected Emetical powder before it hath been waſht, mix them with as much of pure and well dryed Tartar, this mixture put in a glaſs Cucurbite in ſadd, and pour upon it ℥ iij. of diſtilled Rain-water, boyl and evaporate them together to a dry bottom, then take up the lump and diſſolve it in a ſufficient quantity of the ſame water, filtrate the diſſolution to ſeparate the

powder from it, then evaporate the filtrated liquor to a salt, upon which pour drop by drop very good spirit of Vitriol, untill you shall perceive no more of ebullition nor any noise, which is a true sign that it is satiated; evaporate all the superfluous moisture, until you have a very dry salt of a pleasant taste, which is administred in Broths or some convenient Decoction; sometimes it works only by Stools and Urines, but it provokes also for the most part Vomiting, when it meets with a stomach stuft with slime and other viscous matters which do rise in the stomach and ferment easily. The Dosis may be from ℈ ſ. to ʒ ſ. It is a Remedy which cannot be sufficiently praised nor commended. Our Counsel then is, that the Artist prepare his Emetical Wine with this corrected Glass, *viz.* infusing ʒ j. ℔. of his Emetical corrected powder in ℔ vj. of boyling wine in *B. M.* in a great double or blind glass Body, or in a Pellican the space of 24 hours, then filtrate it afterwards through a paper, wherein hath been put ʒ j. ß. of Sugar in powder, impregnated with ℈ j. of oyle of Cinnament, and ℈ ℔. of oyle of Cloves; and thus shall you have an Emetical Wine, which may be relyed upon without any scruple, and for using of which no Physition can ever run hazard of being reproached. The Dosis shall be from ounce ſs. to iij. or iiij. the vertues of these three last Remedies you shall finde with those we have attributed to the other preparations, both purging and Emetical, to which we refer him to avoid needlesse repetitions.

Ophthalmick antimonial Water.

℞ Of antimonial Glass reduced to an alkohol, or triturated *Crocus Metallorum*, in the same manner ʒ ſ. put it in a Matrass with ʒ j. of *Florentine Iris* Root, and vj. Cloves grosly beaten to powder, pour upon Rhew water, and Eyebright, and Fennel water *ana* ounce vj. place them in a vaporous Balneo, or in the warm Summer Sun to infuse, and stir often the Vessel during the space of fifteen dayes, which are required for perfecting the Infusion, and you shall have an Ophthalmick water, with which very few are comparable, for strengthening the sight against suffusions and blemishes, and to dry and cleanse the pustulous eruptions.

tions which grow often in the corners of the eyes, and in the lids, and cause there a kind of itching and biting inflammation. But that which is most to be wondred at is, that this water causes no pain, and yet pr[illegible]s very great effects.

The salification of Antimony.

WEE shall deliver two several wayes of preparing the salt of Antimony, as we have done two different manners of extracting the Tincture. For the first, Take the remainder of the antimonial Glass whereof the first Tincture was extracted, and mingle it with its equal weight of Brimstone in powder, then calcine them together, in the same manner as you did calcine Antimony to prepare Glasse thereof, and stir well the matters until all the Brimstone be consumed, but have a special care not to give too intense a fire, otherwise the powder would melt and return again to the Body of Antimony; this done, grind the remainder to an alkohol upon the Porphyrie stone, put the powder in a Matrass, and pour upon it very good distilled Vinegar four fingers high, then put it to digest and extract in sand the space of viij. dayes, and drawing off the Vinegar pour new in the place until all the salt be extracted, filtrate the extractions, and evaporate the Vinegar till it raises a skin, or what is better yet, till it leaves a dry bottom; dissolve the salt remaining in it in phlegm of Vinegar, filtrate and evaporate, and thus continue till the salt be clean and white, and being in this condition, digest it the space of fifteen dayes with alkoholiz'd spirit of Wine, then draw off the spirit again slowly in *B. M.* and preserve this precious Salt in a well stopt Viol; The Dosis and Vertues whereof we will declare after we have made a description of the other, as it followes.

The

The second way of preparing Salt of Antimony.

℞ The black matter remaining after the extraction of the second tincture, and dry it well in an earthen dish, put it without any other previous calcination in a Matrass, & pour upon it spirit of Vinegar very pure and very subtile, digest them together, & make extraction thereof, filtrate, evaporate, dissolve and depurate as we prescribed in the foregoing description; digest it also with the spirit of Wine which you shall draw from this noble Salt to a dry bottom, and keep for use. This Salt is put in parallel, and as highly valued as the salt of Gold, because it cleanses and purifies the blood, purges the body from all superfluous humours and all filth; cures Leprosie and Venerean Pocks, doth wonders upon the Gout, digests and evacuates as it were insensibly internal Abscessus and Impostumes; cures all inward and outward Ulcers, and expels and drives away all Agues, but particularly Quartanes. The Dosis is from *j.* to iv. graines, in the same liquors and with the same observations as those we have hinted, treating of the use of the Tinctures of Antimony, and let no body wonder if we have attributed so many noble vertues to antimonial Remedies; for besides that I have not followed the most Hyperbolical Authors, yet I am so much convinced of its noble and most excellent vertues and proprieties by the effects I have spoken of, that I openly confesse, that Man's life is too short to go through the Anatomy of Antimony as it ought to be done, and that we are too short sighted and our capacity too weak to discover, or penetrate into the secret mysteries which are hidden in it, for Mans ignorance will ever leave a larger Field therein for admiration, then comprehension and knowledge.

We have already said above, that our intention was not to speak of the mercurial extraction of Metals, and lesse of Antimony; some reasons therefore we have given, to which we add, that although we have exactly proceeded in the experiments of several directions, both printed and taken out of Manuscrips, with all the requisite care and punctuality imaginable, yet could we never bring any

any of them to passe; however we do not proudly and magisterially deny the possibility of this extraction: we do rather chuse to leave the feasableness thereof to the power of Nature and the perfection of Art, acknowledging our ignorance, or of those which did pen the said Directions which hitherto we have followed, and leaving the liberty of a further disquisition, to them that will give themselves the trouble thereof.

Of Bismut, called by some white Antimony.

ALthough this Marcassite or metallick excrement be not used internally in Physick, yet is it endowed with very excellent vertues for outward applications: wherefore we will subjoin the preparation thereof to that of Antimony, because some take it for a species of this Mineral, and call it *female Antimony*, the *French* call it *Estain de glasse*, Glass Tin, the *Germans*, *Bismut*, and many only *Marcassite*, by way of excellency and distinction. We will describe four preparations thereof, *viz.* the Magistery, flowing Liquor or Oyl, and Salt.

The Magistery of Tin Glass.

PRepare first a strong water with equal parts of Salt-peter and common salt. ℞ ℔ ß. of this water, and dissolve therein ʒ iiij. of Bismut pure and well chosen, filtrate the dissolution if there be any foulnesse in it, and precipitate it with tartarized spirit of Wine, draw off the liquor swimming above the Magistery, and wash it with distilled Rain-water until it be all dulcified. It is a very good Remedy for all the vices and eruptions of the skin, and above all against itching; it takes away spots and freckles in it, and smoothes the roughnesse of the Face and Hands. But if you will make thereof a very pure and white Cosmetick, and use it either with or without Pomatum, precipitate it with oyle of Vitriol, and you shall have an almost incomparable white; you must dulcifie and dry it to keep for the time of use.

The

The distillation of Bismut.

℞ ℔ v. of Bismut as it comes from the Mine, before it has ever felt the fire, beat it to powder and digest and macerate it with good white Wine, in a blind or double Vessel the space of three dayes, draw off the Wine after digestion, and put new in the place, and thus proceed digesting with new Wine, until you have spent viij. or x. pints of Wine: finally, pour the fourth part of the Wine digested upon this Marcassite upon its own Body in a Cucurbite, which place in sand, and cover it with a Limbeck; draw off the Menstruum with a moderate heat to a dry bottom, cohobate the fourth part, then the third, and finally the fourth in the same heat to a dry bottom, and when you see it yields no more moisture, stop the nose of the Limbeck, and encrease the fire, and there will sublimate and rise in the head thereof white silvered Flowers, which keep without further preparation in a well stopt Viol, or if you put them in a Cellar upon a glass Table they will dissolve into Oyle, or to speak more properly, into Liquor, which keep also for its uses. This done, put all what you have extracted by distillation in a capacious Cucurbite, to draw off the spirit of Wine, which may yet be employed in some other operations upon Minerals, and pouring the rest in a bottle metal earthen pan; evaporate in sand till it comes to a pint, then let it rest the space of three dayes, and if the Artist doth not see some chrystallization of salt to shute above it, let him evaporate half of the remaining Liquor away, and throw some very clean strawes in the Liquor, which being put again in a cold place, the chrystals of Salt will stick to the straw; thus go on in evaporating and chrystallizing until no more salt doth come, dry gently and slowly that which you have got, and keep it in a Viol for use.

The Flowers are preferable to the Magistery for the outward application upon the skin, and the liquor thereof made in cold, takes away all spots and freckles from it; the Flowers may be mixt in Pomatum's. But the Liquor and salt are wonderful Remedies against all kind of cancerous and malignant Ulcers, and the cure of

of Fistula's. Briefly, that Surgeon that shall be industrious enough to apply them to their proper uses, shall finde them to be two external Remedies not inferiour to any other Topical Medicament whatsoever; He may also mingle them with Injections or vulnerary Waters, with whom he shall inject them with Syringes, and wash and foment therewith Ulcers, particularly those that participate of a cancerous or corroding nature: for this Mineral is endowed with a volatile sulphur and a balsamick Salt, which cannot sufficiently be esteemed for softening and allaying of pain, and mundifying and bringing to a full cure the most desperate and malignant Ulcers.

Section V.

Of Salts.

WEE may say in general, that Salts are nothing else then Minerals dissoluble in water, and which after evaporation of the said water, may be restored into salt. But as we speak not here of salts as they are principles and causes of Physical generations; so will we only deliver plainly our mind concerning mineral Salts, either natural or artificial which are used in Physick, and afford many vere good Remedies, and many excellent dissolvents by the help of Chymistry. And as we have spoken above of the preparation of animal and vegetable salts, so have we no more left to do now, then to examine and describe the nature of such mineral salts as are natural, and of those which though artificially prepared, keep still in themselves the Character and Idea of mineral natural salts. We must nevertheless say something of their original in general terms, before we come to the particular description, and so give a general Idea and Prospect of such Operations as are performed upon salts.

The original and spring of mineral salts cannot otherwise be

conceived then intellectually, and by the comparison which a natural Philosopher must make of sensible and known things, with those that are hidden and removed from knowledge. For as he can perceive some salinous substances to be generated in Animals and Vegetables, from the superfluity of their food and nourishment, or by some action of their internal heat, or coagulation of their Tartar naturally coagulable; even so doth he conceive the great World to be filled with a spirituous and luminous substance analogous to food, which maintains the generation and production of all things by the help and ministery of heat; and when this spirituous and lucid Aliment hath once stamped his character and efficacy in any substance or place, and that it begins to contract a heat in it self, and to overflow, there mineral salts are generated; and according as the matrices where this coagulation is made are different, so likewise are produced salts of a different & distinct nature: such as are common salt, salt Gem, Allom, Salt-peter, Vitriol, to which is added likewise Armoniack salt, though prepared by Art. The preparations of salts in general are, Purification, Calcination, Distillation, Sublimation, Fixation and Liquation. We will give examples of all these operations, when we describe every one of these salts in particular, the better to instruct the Sons of art, and proceed still as we have done hitherto, with the least possible confusion.

Of common Salt, and its Chymical Preparation.

COmmon salt, is nothing else but that substance which causes the brine of water, whether it belongs to the Sea, or some spring yielding the same, and the water being vapoured away, leaves that which we call Common or Kitchin salt; And though under this general appellation many species be included, yet the best of all them is that they call Sea-salt, or Bay-salt; and particularly that which hath been dryed up in saltish Marshes, by the vertue of the Sun beames, and the salifick ferment which is peculiar to the soil of those Marshes after they have been impregnated with impressions and particles of the light: wherefore our Counsel is to the Sons of Art, ever to make use of that kind of salt,

salt, whensoever they finde the name of Salt mentioned in any Author, or some practical Manuscript; and as *sal gemm* is nothing else but a natural concretion of Common salt in some Matrix of the earth, so think we unnecessary to give him any peculiar preparation, since the way of preparing it is the same with Common salt.

Purification of common Salt.

THis purification, is nothing else but a dissolution of the Body of the salt upon which your operation is intended, whither in Rain or Spring-water, to sever from it some earthly foulnesse and impurity, which might communicate some ill quality to the Remedies intended to be made therewith. The dissolution must be made in a proportionate quantity of water, and in a moderate heat; after which, percolate the dissolution being warm through a linnen cloth Bag, or a Filter or Blanket, and if you will proceed more exactly, filtrate through a paper, and let the salt shute into Chrystals; then proceed in evaporating the water to half consumption, and let the Chrystals shute again in the cold, until you have got all your salt pure and clean, which cause to dry, and put in a Box or small Barrel very close, and keep it in a dry place for your Operations.

The Calcination of Common Salt.

THere are two kind of Calcinations of salt, Decrepitation, and Fusion. *Decrepitation* is nothing else but the calcination of salt in an earthen pot not glazed with a circular fire, until the salt makes no moncracks or noise; the end of it is by reason of mixing the salt with other substances in some operations, and because when the fire works upon it, it crawles, leaps and stirs, and so might scatter and discompose the said substances join'd with it, which happens not when it is decrepitated; besides, that this Calcination deprives it also from its phlegm and moisture: but if it be too much urg'd by the fire, the acid spirit flyes also away:

wherefore the Artist must here govern the fire gently and with discretion, to make it rather a violent Exsiccation, then such a Calcination as might bereave the Body of the salt from its active Spirit.

The Calcination made by fusion, is nothing else but the melting of the decrepitated salt in a Crucible in the wind-furnace; if this salt be kept melted in a warm and dry place, it will preserve it self in a lump, to be used when there shall be occasion; But if it be exposed to the ayr, it dissolves in water, which must be filtrated and put in a Bottle; it is that which *Paracelsus* calls *Sal solutum & aqua salis*, dissolved salt, or water of Salt. There is besides a third Calcination of salt, called *the fixatory Calcination*, which is made with equal parts of Common salt and quick-lime, which is put in an earthen unglazed pot, and being exactly covered, place in a Wind-Furnace in a violent heat until it melts to a lump; which done, cease the fire, and dissolve the lump in Rain-water, filtrate and evaporate to a dry bottom, and reiterate so often this Calcination with quick-lime, that at last it may become a fusible salt, which is used for extracting the Tincture of Metals, upon which processe the Sons of Art may make their reflection, for this is not without some Mysterie.

Having delivered the manner of these general Preparations, we must say something in general also of the *vertues of Common salt*, before we come to the particular application of those that are found in each particular preparation. Common salt is generally good for cleansing all rotten, putrid and hollow Ulcers, to resolve all Tumors and Boyls, but chiefly pestilential sores; it allayes the fire of burnings, dryes scabs and itch, takes away mange, resolves extravasated blood, and removes the lividity or blewishnesse of Contusions and bruises, asswages the Toothach and pains of the Head and Gout: but for all this the use is only external, mixt in Water, Vinegar or Urine according to the distemper; the best for all these purposes is that which hath been melted without addition, because its internal sulphur begins to produce it self, as it appears by the redness of its colour. But if salt hath many vertues in outward applications, it possesses no lesse eminently several remarkable ones internally used: for it doth heat and dry, cleanses and purges, hath a gentle astriction, consumes

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superfluities, penetrates, digests, opens, cuts phlegm and tough humours, provokes lust, resists putrefaction and venoms: wherefore it is of singular use to correct the crudities of the stomach, quicken appetite, and helps the recovery of it when lost, removes obstructions of the Belly and Reines, and is good against griping of the Guts and Collick: Finally according to *Basilius*, it is the noblest and best of Aromats, and the true Balsom of Nature.

The distillation of Common Salt.

Although many Artists have spent their Philosophy and meditation upon the distillation of Common salt, and that *Glauber* amongst the rest, hath taught a way to extract a great quantity of it in a short time, yet have I found no surer nor quicker way, or lesse intricate and more easie to put in practice, then that which I shall now teach. But before we come to the description of it, let us make some necessary Notes: for is it not first a very strange thing, that the most part of those which describe this Operation, will have the salt to be decrepitated? but as we have said above, that violent Exsiccation, not to say Calcination, separates and takes away from the salt its volatile spirit, phlegm, and almost alwayes the best part of its acid spirit, which ought not to be done, since the volatile spirit and phlegm have also their uses in Physick, and it is not fit the Artist should want of skil and knowledge, and lose that which he may easie preserve without any way endangering his Operation, provided he observes well the degrees of fire. The Artist must also note in the second place, that some do mix salt with the heterogeneous matters, pretending thereby to facilitate the distillation thereof; as for example, burnt Allom and Colchotar of Vitriol; but they do not consider, that by this meanes they alter and change the vertue of the spirit of Salt. Some other do mix ordinary Clay, taking no notice that oftentimes this earth is impregnated with some mixture of metallick or mineral seed, as it is evident by the smell of the smoak, phlegm of Kills where Bricks or Tiles are ordinarily back't, and likewise of Potters Furnaces; so that all things well considered, the Artist must choose such kind of Earth or Clay which

which may be of a moſt fix nature, and contribute the leaſt of its quality to the ſpirit of ſalt; Now amongſt all the ſeveral kinds, that which is called *Sigillated* or fine *Bolus*, are of a nature which cannot at all bring any alteration to the ſalt, unleſſe to the better: wherefore we would have either of theſe two uſed for the diſtillation of this Spirit, which is made as we will now declare, ſo as to hinder the fuſion or melting of the ſalt.

How to make and duly prepare the Spirit of Salt.

℞ ℔ ij. of Common ſalt purified, beat it in a Marble Mortar, and mix it by parcels of ℥ ij. at once, with ℥ vj. of fine Bolus or ſigillated Earth, and all the mixture being exactly done, knead it and incorporate it with water of Salt, which is melted ſalt diſſolved in a cold Cellar, and thereof make a kind of paſte, whereof frame Pellets to be dryed in an Oven, after the bread is removed, or in the heat of the Sun; break one of the Pellets to know whether it be dry to the very Center, and that being ſo, fill up with it a great earthen Retort very well luted, and having placed it in a cloſe Reverberatory, fit a large and capacious Recipient to the neck thereof, which lute exactly and cover the Furnace, leaving a Regiſter in the middle above the Retort, that the fire may the better circulate about it. The Lute being well dryed, give it firſt a gentle fire fit to warm only, and modifie both the matter and Veſſel, and when the drops ſhall begin to fall, and the body of the Recipient to grow warm, proceed ſoftly and gently in your work; for it is a ſigne that the volatile ſpirit of ſalt, begins to free and diſ-intangle himſelf from the Body, and as it is a ſubtile and fiery ſpirit, you muſt ſtop the Regiſter and moderate the fire, until the firſt rage of it be allayed, for it is at that inſtant and nick of time that the whole operation runs more danger, becauſe this ſulphureous ſpirit is coagulated with difficulty; this will laſt ordinarily four or five houres, after which the acid ſpirit begins to come forth, which appears by vapours and white clouds which fill up the Recipient; then may the Artiſt freely encreaſe the fire without fear of any danger, and continue it ſtronger and ſtronger, until the flame comes forth through

through the Register, and the neck of the Retort appears red as fire through the body of the Recipient; this Operation cannot be well compleated in lesse space then of xxx. houres, after which cease the fire, and the next day open your Vessels, wherein you shall finde in the Recipient a liquor mixt with the volatile spirit the phlegm, and the acid spirit of the salt, some do add to this the oyle of Salt, but improperly. Pour all these into a Cucurbite and place it in *B. M.* to draw off the volatile spirit which ascends first, having a sulphureous smell, and frames subtile and crooked veines in the head of the Limbeck, receive it as long as these come forth, and when you see the veines to grow straight, and the drops falling to have none of the smell or taste of the volatile spirit; change the Recipient to receive the phlegm, and encrease the fire stronger then before, because it doth not so easily ascend as the volatile spirit, and when the distilling drops shall have an acidity, cease the fire; for it would prove too great a toyl to endeavour to raise the acid spirit by reason of its heavinesse in *B. M.* the heat whereof is too weak and insufficient for this purpose, If the Artist hath a design to apply the acid spirit of salt to physical uses, he needs not rectifie it any more, for it hath an excellent and very pleasant acidity as it comes out of *B. M.* wherefore he may preserve of this a third or one half part for his use, and put the Cucurbite in sand to draw the other half by distillation, and so shall he have a true acid spirit of salt very clear and very pleasant, and that which remains in the bottom of the Cucurbite will be of a yellowish colour, heavy, and of a biting and violent sharpnesse, fit to be used in the dissolution of Metals, and chiefly stones; this is that substance which improperly is called *Oyle of Salt.*

We have noted here all the circumstances of the distillation and rectification of the spirits of Salts, that we may have no need to make unnecessary repetitions thereof when we shall speak of other salts, since whosoever can exactly well draw the spirit of salt, can never be mistaken in the distillation of others. So that we have no more to do now, then to add the proprieties and vertues of several substances drawn and proceeding from the Common Salt.

First then, *the volatile sulphureous spirit* is a good Cephalick and

and Sudorifick, wherefore it may be given from ij. p. to x. in Broths and appropriated waters, to those which are troubled with Megrim, or any other Headach; it is also very excellent to be mingled in the ordinary drink of feaverish or aguish persons, allaying thirst, and asswaging their restlesnesse. They may also have Frontals applyed, made with the phlegm, that have inveterate paines in the Head, and not sleep through too much heat and disquietnesse. But above all things the *phlegm* is excellent to wash Wounds and Ulcers, which it wonderfully doth cleanse without pain or grief; but contrariwise, it appeases it if there be any. It is also a wonderful fomentation for the swollen joints and pained limbs in gouty people, provided you mingle a little of its volatile spirit, and a little of salt of *Saturn* with it. The *acid spirit of salt* is diuretical and good against gravel and stone, it resolves and drives away powerfully Tartar and Muscilagineous substances from all the parts of the body: wherefore it is of very good use to open all obstructions of the Liver and Spleen, and generally all the parts of the Ventricle; is singular against Dropsie, for it quenches the thirst of the Patient; it is also wonderful against Jaundice, ebullitions of blood, driving away by Urine the causes of both Diseases; it is of a soveraign efficacy to stop Gangrenes, and to resist all manner of corruption and putrefaction; mixt with oyle of Turpentine or oyle of Wax, it appeases the ach and grief of the Gout, dissipating the Tophus's and Nodosity's thereof; it quickens again, and cures also the contraction of Members and withered Limbs, and doth remedy their atrophy.

We have spoken above of the sweet spirit of Salt and tempered Water, when we made mention of Coral and of its Tincture, where also we did relate its proprieties and vertues; wherefore we shall not use vain repetitions here. We will only add one distillation more of an extraordinary spirit of Salt very Philosophical, and which is altogether endowed with a particular vertue.

The

The essential and stomachical spirit of Salt.

℞ Of purified and very dry salt, calcinated in open fire in a Crucible to whiteneſſe; put it in a Matrass and imbibe it with oyle of salt, which is the last spirit remaining in the rectification in the bottom of the Cucurbite; make the imbibition by little and little, stirring the Vessel until the mixture be reduced into a clear pap, lute the Matrass with a Blindhead, and put it to digest in ashes in a moderate and equal heat, until the oyle of salt be well united with the calcined and deſiccated salt; then begin again the imbibition, digestion, union and extraction so often, that the salt refuses to receive any more of, and be satiated with this Oyle, which must swim above it without penetrating; but the true concluding signe that this salt will be ready fitted for distillation, is the turning of its colour into a fair golden yellow colour, and having contracted a pleasing and a sweet smell, which when it hath, put it in a Retort, and distil in a well graduated fire, and there will come out a very white smoak and clouds, which by degrees shall turn into Liquor; the distillation being ended, rectifie this spirit in *B. M.* to separate the phlegm thereof, and you shall have an essential and stomachical spirit of Salt, with which none is to be compared in Physick, to stop in a moment and as it were miraculously all fits of vomiting in any accident or Disease whatsoever. Some are of opinion, that this Spirit is capable to extract and draw the Tincture of Gold to it self, without a full dissolution or disunion of the whole body. The Dosis is from j. to iv. drops in some Broth, or a spoonfull of syrup of Pomgranates, or rind of Oranges, or in a little Wine.

The preparation of the sweet Chrystals of Common salt, or the coagulated spirit of Salt.

YOU must chuse first a capacious and large Retort, made of good Earth, capable to resist fire and not porous, the neck of the Retort must be three fingers broad in diameter, that the spirits issuing forth in abundance may have a free passage, let it also have a channel or Conduit in the upper part made Funnel-like, only five inches high, with a very close and well fitted stopple, easie both to be shut and drawn off again with the same ease, and without stirring the Retort; moreover, this Retort must be walled in a close Reverberatory, having four Registers in the four corners, the channel or Conduit-pipe of the Retort being just in the middle; all this being so fitted and prepared, throw into the Retort ℔ iiij. of Bay salt well purified and well dryed; put a large round glass Body, or *Ballon* to the neck of the Retort with ℔ j. of distilled Rain-water in it; lute exactly the joints, and let the Lute dry very well, that no crack may be in it; then begin to give it a gradual fire, which encrease to that height that it may leave the salt in fusion in the Retort; this done, throw into it j. or ij. drops of cold water with a Feather by the upper pipe or channel, and stop it immediately; it will yield great store of vapours which will come over into the Recipient, and the Recipient being cleared, begin again to throw j. or ij. drops more of water at the most; for otherwise the Vessel might flye up and the Artist run hazard to be hurt; keep up the fire in this height for preserving the salt in fusion, and proceed in throwing of water by drops until it be turned all into spirits and vapour, which done, let the fire cease and the Vessels cool. Put whatsoever is found in the Recipient in a Cucurbite in *B. M.* if so be you finde it pure and clear; if not, filtrate it before you draw off the phlegm, and distilled Rain-water which was added, then try in a cool place if any Chrystals will shute, which if you finde; separate the Chrystals which are sweet and of a pleasant taste, and proceed in the extraction of superfluous moisture and chrystallization.

tion until it yields no more Chrystals: keep some part of these Chrystals in a Viol very exactly stopt, because they may so be more ready and easie for transportation, and put the rest in a Cellar to dissolve into a Liquor which will be of the same vertue and efficacy, but the Dosis must be a little bigger. Both Chrystals and Liquor are two good Diaphoretick's or Sudorificks, allaying altogether the thirst of hydropical persons, and restoring to their languishing bodies that essential moisture which is daily consumed and preyed upon by that undermining Disease, strengthening their digestion, and restablishing all the intrals which suffer by it and are altered; briefly, it is a true vital Balsom in all other Diseases, and chiefly in the Plague and all malignant and burning Feavers. They are also good Topical Remedies to mundifie evil Ulcers, and resolve Tumors and swellings.

Of Niter or Salt-peter, and its Chymical preparation.

ALthough there are many that take Salt-peter to be an universal Salt, believing that it possesses in it self the Soul of the World, yet we are of a different judgement, if by Niter or Salt-peter is understood that chrystalline Hexagonal salt, which is used in the making of Gunpowder. But if by Niter or Salt-peter be understood a mysterious salt which is the soul of all physical generations, a Child and Son of Light, and the Father of all Germination and Vegetation, we confesse that Salt in such a respect to be Universal: but we say at the same time, that it is more to be apprehended by the Intellect then the Senses, and that this divine Salt cannot be comprehended nor hidden under any other covering or shape, then of the sulphureous and Mercurial volatile salt of all natural Bodies, since this salt is endowed of all the essential and centrick vertues of sublunary Mixts. But as concerning Niter or Salt-peter, which is common in our daily use, we do not deny, but that it possesses in it self much of a volatile sulphur and Mercurial spirit, which have their original from Light; and are folded, wrapt, and sealed in a course and earthly faline matter proceeding from the Water and the Earth, which is the reason that much of Philosophy, and much of work

and operation must be bestowed upon, before any body can attain to the capacity of separating these several substances, by distangling this wonderful Agent from the society of its matter, without losing or imbezelling any of its essential and heavenly qualities. But as it is not our design to treat generally of Salt-peter, so will we restrain our selves to speak of it here as only of a mineral salt, which is extracted from fat and fruitful Earth. Wherefore a Lye is prepared with water which this salt coagulates with its self, as it appears by the fusion of Niter, which by the action of the fire loses all its aquosity, so that there remains in it nothing but the taste and vertue of an Urinous and Lixivial salt, which properly is nothing else but that fat and fruitful salt extracted from the earth, separated by fire from the water which Nature or Art had mixed with it; and this is not one of the least secrets and mysteries of Chymistry, if it be well heeded and meditated upon. For we must confesse, that Niter is one of the most wonderful and powerfulest Agents which Nature hath lent to Art, as the Sons of Art may have noted hitherto by those Operations wherein we have used it, and may yet note by those we shall describe in the sequel of this Discourse.

We say then, that Salt-peter is a sulphural salt, partly volatile, and mixt with another earthly salt of a saline and bitter taste, extracted from fat Earth's or Grounds, and from the mines of old Buildings; as likewise from Vaults of Cellars and Stables, the Earth having received the impression and being impregnated with the Excrements and Urines of Beasts, the volatile salt whereof did join and imbody it self with the salt of the Earth, and these two being knit and indivisibly united together by the power and action of the light and ayr upon it, and of the *Archeus* of the Earth which is the Director of all mineral generations, Chymists do call it *the Chymical Cerberus*, the *infernal Salt*, the *sulphurate Salt*, the *Dragon of the Earth*, the *winged Serpent*. Now, as we have still begun all our Operations by charging the Son of Art, ever to be careful of chusing well his Materials before he puts them to work, so do we here enjoin him to take very good heed in the choice of his Salt-peter, and would have him capable of setting a difference between that which of it self is good, without any previous separation, and that which abounds with

fixed salt, which of necessity must be depurated and separated from it that it may be without mixture. The visible notes of that purity, are the length of the Needles, their whitenesse and transparency, and the hexagonal Figure which this salt takes alwayes in its chrystallization: moreover, there is the taste which must be of a harsh acidity and sharpnesse, somewhat bitter and ending in a saline sowrishnesse: nevertheless, all these marks are not yet absolutely concluding for its goodnesse and purity; wherefore the Artist must have his recourse to that tryal which is made by fire; Let him then take a burning coal, and put one or two ʒ of Niter upon it, and so let it burn and evaporate into the ayr; if nothing remaines upon the coal, the action of fire being over, it is a true sign of the goodnesse and purity of the Salt-peter; but he shall judge of the value and goodnesse according to the greater or lesser quantity of fixed salt which remaines upon the coal. Physitians are in debate amongst themselves of the first qualities of Niter; for some believe it to be cold, others contrariwise hot; but without losing time about these trifles, we will say generally the vertues of Niter, by the rehearsal of which it shall appear that the last are better grounded then the first in their Assertion, since it resists putrefaction, quenches thirst, and cooles powerfully sick and languishing persons, chiefly feaverish Bodies; but it doth not produce such an effect by any cold quality, but rather by the quickneſse and subtility of its parts, which insinuates and causes the Patient's Drink to penetrate from the center of the body to the Circumference; and moreover, *because* this Salt hath in it self a sulphur and subtile spirit which recreates and strengthens the *Archeus*, so as to dispose him to meliorate and better qualify those functions which it does exercise: add to this that Niter doth cut and attenuate slimy humors, and muscilagineous matters and tartarous coagulations, which are the cause of obstructions; it resolves congealed blood and alayes paines. It is given to persons troubled with Pleurisie, hot and putrid Feavers, against gravel in the Kidneys and Bladder, and heats of Urine. The use of it is also very commendable in Gargels, against inflammations in the Throat and Quinsy. It is of very good successe outwardly applyed in Fomentations with Filets, to take away the heat and grief of burnings, and other inflammations

mations proceeding from effervescency of blood. But let this suffice concerning the general uses of it, since we are to speak more particularly of it in the description of its preparations, which are *Purification, Calcination, Fixation,* and *Distillation.*

The purification of Niter.

℞ ℔ x. of common Niter, otherwise called of the first boiling, put it in an earthen pot not glazed, place the pot in a wind-Furnace, and give it fire by degrees until the Niter begins to melt, and whilest it is in fusion, throw by degrees in it ℥ ij. of powder of Allom and Armoniack salt ground together; this will cause at every throwing an effervescency, by which the fatness and impurity of the Niter will be driven away, which remove with a hot Iron Ladle, and having done with the powder, cleanse very well the superficie's of the Niter from all impurities; then throw it in a brass Mortar very clean and warm; the Niter being grown cold in the Mortar, grind and dissolve it in Spring-water in the heat of a clear wood-fire, then strain it through a Blanket, and pour immediately into this straining whilest yet warm ℥ iiij. of good distilled Vinegar, and put the Vessel in a very close place, leaving it there the space of 24. houres, and so shall you finde your Niter well chrystalliz'd in fair, clear and transparent Chrystals; separate the water from them, and evaporate it by a slow ebullition to a reduction of its half, and let this also shute into Chrystals in the cold; But the Artist must here note, that it is necessary he should still make use of the Niter which proceeds from the first chrystallization, for all the preparations which are to be taken inwardly; and of the remaining for making of *aqua fortis*, and all other Operations which are of lesse consequence. Dry gently your Niter between two fair Searchers or sieves turned upside down, and covered with linnen cloth or paper that it may not be sullied; then put it in very well closed Boxes in some warm and dry place, to use in all kind of necessary Operations, when occasion shall call for in a Chymical Laboratory.

Calci-

Calcination of Niter, to prepare the Chrystal Mineral.

℞ Purified Niter of the first chrystallization very dry, put it to melt in open fire in a good strong Crucible capable of resisting the fire, not apt to crack and very well reback't; when it is in fusion, throw by degrees into it ʒ ß. of flowre of Brimstone upon each ounce of Niter; this done, throw it in a brasse Skillet very clean, and stir it, that it may be extended in a flat Table or Cake, out of which Lozenges may be cut: or you may form small Rowles thereof with an Iron hot Ladle, pouring it upon a smooth Iron plate, or upon a Marble stone. If you will not take so much paines, pour only this Niter so prepared and melted in a clean and warm Mortar. Now I take this Calcination rather for a Reiteration of purification, then a true preparation of Chrystal mineral; wherefore you must have water distilled of the juyce of wild Endive, Bugloss or Borrage, and in a convenient portion of this water melt this pretended Chrystal mineral, and filtrate it through a paper filled with Province or Damask Roots, or Bugloss and Borrage Flowers, made wet before with a little spirit of sulphur, salt or Vitriol, and thus shall you have a Mineral Chrystal pleasant as to the taste, colour and vertue, endowed really with those proprieties and that efficacy we have attributed to Salt-peter. But above all, it will be a true Anodyne and an excellent allayer of thirst and restlessnesse to Aguish and Feaverish persons, to whom may and must lawfully be given the name of *Lapis prunella*, or *Sal prunellæ*; for it is a soveraign Remedy against those malignant and putrid Feavers, which are called *Fieves prunelles* or burning Feavers, because *prunella* in Latin signifies a burning coal. The Dosis must be from ʒ ß. to ʒ j. in the ordinary Drink of the Patient, some Decoction, Broth, or distilled water appropriated to the Disease. This Chrystal Mineral is a general Remedy, that may be specificated by the addition of several salts which may be united and incorporated with it, as the salt of *Saturn*, whereof we have spoken treating of Lead, salt of Pearls, Coral, and so of others; and thus

thus may you have a Cordial, Hepatick, Splenetical or Stomachical Chrystal mineral, according to the faculty and vertue of the salt which you have joined and coagulated to your well prepared Niter.

The fixation of Niter.

MElt lb vj. of very pure Niter in an Iron pot in open fire; throw in it continually by small parcels Charcoal dust, which will immediately take fire, and softly consume by the action of its fire and sulphur, the wateriſh moisture which the salt of the Earth had coagulated and united to it self in its chrystallization; continue this throwing of Coal-dust until you finde it will kindle no more, and that the remainder of the Niter begins to thicken and turn to a blewish and greenish colour; then cease this Operation, and take off this salt out of the pot, and put it in a warm Mortar: and if the Artist will preserve any of it whole, let him put thereof as it is hot and dry in a Bottle, and stop it exactly with a stople dipt in melted Wax. This is true fixed Niter, much altered from its first nature; for it is no more volatile or apt to be turned into Chrystals, but contrariwise turns exposed to the ayre into a liquor which is subtile and penetrating, hath an urinous and lixivial taste like unto salt of Tartar, but yet more biting and more penetrating. We are beholding to *Glauber* for the invention of this Liquor, who hath given us the description thereof under the name of *Liquor alkaheſt*, fit to draw the Tinctures of all natural Bodies, whether Animals, Vegetables or Minerals, and to speak truly, this Liquor hath in it something very considerable, being capable of extracting the sulphurs of Metals, provided they have been well opened before; those of Minerals do easily yield unto it, from whence it may be concluded that it takes in an instant the sulphurs and volatile salts of Animals and Vegetables. If any Chymical Artists have a curiosity for these noble Oparations, they shall finde them in the Book which this great and famous Artist hath given us thereof. But there is left much matter of speculation and Philosophy upon this fixation of Niter, which is made by the Vegetable sulphur of Coals, which doth change it into the nature

of

of salt Alkali, whose taste is urinous and lixivial; this salt being capable of fertilizing the worst Earth's, if the seeds to be put in be prepared with a Liquor made of this salt and some other Ingredients, this admirable Salt so nourishing and invigorating the bud or sprout of the seed, that it multiplyes to so high a number as to seem altogether Hyperbolical, and fabulous to those which apprehend not the hidden mysterie which Nature doth extract from the light of Spirits and Salts, and how the sperm of the seed finds in this saline Liquor that which is analogous to its principle, doth greedily suck and attract it, for which reason being as it were doubly strengthened, it shoots and puts forth a more vigorous and numerous stalk, yielding eares and graines of Corn above all belief, as it hath been seen and tryed in *Paris* some yeares since. But to make this Assertion more plain and palpable, let us reflect upon the practice of the Husbandman in *Britany* and the Forrest of *Ordermes*; who meeting with unfruitful and barren grounds, producing nothing but Heath and Fern, a kind of wild Flag and Broom, use to pare off the upper part or moale of their ground, pluck off the Broom and Fern, and drying all in heaps something distant one from the other, set it on fire, leaving after the heavenly influences and Rain to work upon this calcined Earth, containing the Alkali of all the plants fixed by their own sulphur: this Alkali assisted by the sulphur hath contracted a fatnesse and clammy moisture, heavy and of slow motion, which communicated to the lightnesse, dryness and too great porosity of the Earth, causes it to keep with it a kind of greedinesse and delectation, a pleasant substance and nourishment; and as soon as the Rain doth abound and exuberate, it cannot so soon be disjoined from it, neither carried away by the violent heat of the Sun by reason of its fixednesse; and so it comes to passe, that when these Husbandmen have plowed and sowed their grounds, they reap store of Rye for the first year and Oates in the second. We brought in this story only to the end that the Artist may reflect with his meditation upon this salt, and note the better its worth and excellency, which proceeds from nothing else but the mysterie of Nature contained in the Salt-peter, which he must seek by his industry how to free and dis-ingage.

To make the Solar dissolutive Earth of fixed Niter.

℞ ℔ j. of the fixed Niter which you kept in a Bottle, pour upon it ℔ ij. of very good distilled Vinegar, put it in ashes to digest 24 houres, then distil and draw off the liquor to a dry bottom, and your Vinegar will ascend tasteless and insipid; reiterate in the same manner the same operation with new distilled Vinegar, until the Vinegar comes off with the same sharpness as you did pour it on; then dry it well, and dissolve it in very good alkoholized spirit of Wine, filtrate and digest them together during the space of four natural dayes, then distil in *B.M.* to a dry bottom, drawing off the spirit of Wine again, which you may yet use afterwards in all other Operations. Put after this your Cucurbite wherein lyeth the salt in a sand-Furnace, and give it a good fire, so shall the salt cleanse it self from all remaining impurities, and settle in the bottom into a substance something resembling Calk, white, of a good and pleasant taste, and dissoluble in all manner of Liquors, melting in the heat like Wax. It is one of the best Remedies amongst Chymical preparations, for it opens all obstructions and purges gently and without prejudice, and giving offence to the digestive faculty of the stomach, both by Stools, Urines and Sweats. It corrects the malignancy of all Purgatives, and encreases their strength in double proportion, it is one of the most soveraign Medicaments that can be made use of against Chronical and obstinate Diseases. The Dosis may be from ℈ j. to ʒ ß. and ℈ ij. in infusion of Rhubarb made with this salt, a little of Cinnamon and white Wine, or in Broth.

The

The distillation of Niter, and how to prepare the spirit of Niter.

℞ ℔ ij. of depurated Salt-peter, grind it by little and little with ℔ vj. of common Bolus, and being thus well mixt make a paste of it with water impregnated with as much pure Salt-peter as it is capable to dissolve in the cold, knead and work well the paste, and rowl it to make Pellets therewith fit to be put in a great earthen well luted Retort, which place in a close Reverberatory, and fit a capacious Recipient to the neck of the Retort, exactly luted with a salted Lute. The Lute being dry, begin to give it your fire by degrees, and thus proceed the space of 20 or 24 houres, with the same gradation as we have taught in the distillation of the spirit of Salt. There is nevertheless this difference between them, that Salt-peter alone yields red spirits, by reason of its foul and infernal spirits, which are children of the Sun, for all other salts send forth only whitish vapours; this is that Spirit which ancient Philosophers have called *the Salamander's blood*, as if one should say, the blood and soul of Fire. This is the most ordinary way of preparing the spirit of Niter, to use in all dissolutions and other Chymical operations. But there is yet another manner of preparing it with more subtility for inward uses, to apply it as a Remedy, which is thus performed.

℞ Of the finest Salt-peter you can finde, and very dry, reduce ℔ ij. thereof in powder in a warm Mortar, in a very dry & fair day, pound also ℔ vj, of pots made with ordinary Clay, only wrought & dryed before they be baked; mingle these two substances exactly together, and pour them in a capacious glass Retort with a very broad or wide neck, and chiefly from that side which is towards the belly of the Retort, let it be luted with a very good sticking Lute, abiding in the fire and not easily falling off, neither cracking; fit to the neck thereof a very large Recipient, and lute or close the Vessels together only with a wet Bladder, begin the fire very slowly at first, and thus go on encreasing by degrees until all the phlegm be come over, and the Recipient begins to grow red, then empty the Recipient, or substitute another like unto it very

dry and clean, which lute with the same Earth wherewith the Retort was luted; then encrease the fire and keep it still higher, so as you perceive that the falling drops shall be of a red or yellow colour, or that the Recipient begins to lose something of its high red colour, even during the great height of the fire; for this is a true sign of the end of the Operation, and do not expect till the colour begins to grow clearer, for this would never happen by reason of the red vapours which this spirit continually sends forth. But the Artist must be preadmonished to take heed, when he comes to unlute the Vessels and pour out this red spirit, for it is so vaporous, subtile and volatile that it would endanger and suffocate him, or it may be cause him to lose all by breaking his Vessels: wherefore let him stand above the Wind and stop his Nose, not opening the mouth, and taking very great heed in the pouring out of it; and to this end let him have both his Bottle and Funnel in great readiness, that he may meet with no stop. The Viol wherein this Spirit is put, must be very exactly closed with an earthen stople, very closely joyning on all sides that nothing may evaporate: this spirit is endowed with many admirable faculties, both for Physick and Metallick: but considering it is so subtile and so volatile that it cannot almost be preserved, much lesse transported or sent upon occasion abroad; there is a way found to mix and circulate it as followeth for better preservation.

The circulated Spirit of Niter for Physick.

℞ ℥ vj. of the red spirit of Niter, ℥ xij. of Balm water, ℥ ij. of spirit of Lilly Convally Flowers, put them together in a capacious Pellican, or two joined Matrasses with a long neck, and place them in a vaporous Balneo in Oat straw, and digest them in a temperate and gentle heat the space of seven continual days: then put this circulated and united spirit to the other, and to the water in a strong Viol very well stopt, as we have said of the spirit; it is an admirable Remedy, both against Apoplexy and Epilepsey, against Colick, and generally against all obstructions; it is also very good against Agues and Plague. The Dosis is from ℈ j.

to

to ʒ j. and ʒ j. ß. in Wine, Broth, some Decoction or distilled water appropriated to the Disease.

Now as the *aqua fortis* and Regal water take only their dissolving faculty properly from Niter, though for the most part other salts be mingled with it, such as are Allom, common Salt, *sal gemme*, Vitriol, and salt Armoniack; therefore will we give a description of them here, as we did promise above.

How the good aqua Fortis *is to be prepared.*

THe name of *aqua fortis* hath been given to the spirit extracted from Niter and Vitriol, because it hath the strength and faculty to dissolve all kinds of Metals, Gold excepted, whom it cannot touch or work upon unlesse it be Regalized; that is to say, made capable of dissolving Gold which is the King of Metals, for which cause the name *of Regal* or *Regal water* hath been given to this other Dissolvent. *Aqua Fortis is made thus*:

Equal parts of Salt-peter of the second chrystallization, and Vitriol only deficcated, to which add half their weight of Brick-dust very dry, and put these in a good earthen Retort well luted, fitting to it a Recipient, and make your Operation and Distillation with the same care and precaution as we prescribe above in distilling the spirit of salt. Drive the fire the space of 24 houres, making it the last eight houres of a very quick flame, that the last spirits may be very well drawn off from the Center of their own Earth, wherein they be strictly intangled. Then there remaines a salt of middle nature in the *Caput Mortuum* (as it is called) which is of very great vertue, by reason of the mixture and action and reaction of the Vitriol and Niter one upon the other, whereof a very good Remedy may be prepared in the manner following.

The

The vitriolated Niter, otherwise the Arcanum of Niter and double Panacea.

PUT the *Caput mortuum* of your *Aqua fortis* to digest in boyling distilled Rain-water, and stir it often, the better to extract the salt, filtrate the dissolution, and slowly evaporate it in ashes in an earthen Pan or glass Vessel; and when you shall perceive a small skin gathering on the top of the Liquor, put it to chrystallize, then continue to evaporate until you have extracted all the salt; which you must so often dissolve, filtrate, evaporate and chrystallize, that it appears clear, pure and bright. Then ℞ ij. p. and ℈. of this salt, and p. ℈. of mineral Chrystal, prepared as we have taught, put them together in a well luted Cucurbite, being first triturated into very subtile powder, calcine them together in open fire in this Cucurbite, giving it a gradual fire until they be together in fashion; the Vessel being cooled draw out the matter, and grind it once more with an eighth part of mineral Chrystal, and begin again the Calcination and Fusion in a new luted Cucurbite. After this second Calcination, dissolve that which did remain in the distilled Rain-water, and filtrate the dissolution, then evaporate in the vapour of *B. M.* to a dry bottom; this salt being so dryed, grind upon a Porphyrie stone into Alkohol with an eighth part of calx of Gold well opened, and mix them as it were indivisibly together by trituration; then put this mixture in a new luted Cucurbite, and calcine it in a very well graduate fire till it hath attained to a fluxion, which done, cease the fire and let the Vessel cool; and out of it take that *Grand Remedy*, whereof abundance of experiments have been tryed against diseases of Melancholy, and all kind of Agues and feaverish distempers, both continual and intermittent, also against gravel and scurvy, and finally against all obstructions. The Dosis must be from scruple ℈. to scruple ij. in some Confection, Conserve, or appropriated Liquor. The vertues of this Salt and its manner of operating cannot sufficiently be praised; for it sweetly provokes sleep, and settles the *archeus* of the Ventricle in its ordinary state

and

and calmnesse when it is out of order. Briefly, there is a certain hidden Mysterie in it, whereof it is very difficult to render any reason, unlesse we conceive that this salt must have received the eradiations of the anodyne sulphur of Vitriol, by the great expression of the fire, or sufficiently opened the Gold, to make him yield and communicate his salutiferous influences; but we rather give credit to the first then the last Conjecture.

How the Aqua fortis *is to be regaliz'd or made Regal.*

ARtists use to Regalize their A*qua fortis* with decrepitated salt, or salt Armoniack. Some dissolve either of it only without more ado in the *aqua fortis*, viz. j. p. salt, and iv. p. of *aqua fortis*. Others mix ij. p. of Niter, and j. p. of Armoniack salt, with iij. p. of the *Caput mortuum* of the *aqua fortis* and distil it S. A. Others do make *Gradatory waters*, as they call them, with Sublimate, Arsenick, Orpiment, Brimstone, Cinnabar, *es ustum*, spanish-green, and many other Ingredients; but as all these are not for Physical uses, and that moreover, the ill smell proceeding from those operations doth kill and hebetate the Brain, and causes evil accidents and shakings of the Limbs, we shall afford no description thereof here since they make nothing to our purpose, which is to preserve and restore health, not to impair or destroy it. But as we have occasion of a good Regal water, pure and well prepared to reduce Gold in a subtile and well opened Calx, the son of Art shall thus prepare it.

How the true Regal water is to be prepared.

℞ ℥v. of red spirit of Niter, and ℥iv. of *sal gem* in powder; put the *sal gem* in a pretty capacious Retort, and pour upon it the spirit of Niter, mixing them very well together, place the Retort in sand, and fit to it a very capacious Recipient, which lute without much circumspection, provided the neck of the Retort be large, and strikes half a foot into the body of the Recipient; give fire to it by degrees, and encrease it by little and little

tle till the *sal gem* be altogether dryed, and that neither drops nor vapours will come forth any more from it. Pour this true Regal water into a good Lorrain Glass bottle, double and well backed, stopping it with a Glass stopple made very fit to the neck of the bottle, by working and turning it within with powder of Emerod and Oyle, otherwise this water would flye and vapour away; which makes me counsel the sons of art, not to prepare it till they be ready to use it in their operations: this is the Dissolvent wherewith they shall be capable to prepare Gold in the right manner, to reduce it into a Calx capable to answer their expectation, in such preparations as they shall design with it, or to satisfie their curiosity in discovering the sphere of activity of *this noble* Art, or to extract such Remedies as may be useful for the relief of afflicted Patients.

Of Allom and its Chymical preparation.

WEE understand nothing else by Allom but a saline substance dissoluble in water; though many other things bear improperly this name, which rather participate of the nature of Calk by their incombustibility then of Allom, whereof we intend to treat as of a fit subject for this Section, where we only handle Salts. That Allom whereof we intend to give the manner of preparation, is that which in Pharmacy is called *alumen rupeum* or Roch Allom, and being nothing else but the salt substance of a mineral earth, participating of the nature of Lead or *Saturn*, having in it self an acid spirit and a harsh, caustick salt. Our Allom is made three several wayes: for some of it is first found ready prepared by Nature, and condensated of it self in the veines of aluminous Earths. Secondly, It is made by the evaporation of mineral aluminous Waters: and thirdly, it is also drawn by the dissolution of Earths, Stones, or other Minerals abounding with aluminous salt. The general vertues of this Salt are to desiccate, astringe, thicken or incrassate, there is not much use of it inwardly without preparation, though by some it is given against Agues; but it is much us'd in Gargarisms, which are appointed for diseases and paines in the Throat, and chiefly in the swelling

and

and inflammation of the Almonds, and falling, swelling or inflammation also of the *uvula*; it is also good against Quinsy, rottenesse and putrefaction of the Gums, proceeding either from a Scorbutical venom or Tincture, as also of Venereous infection; it is also a good Resolutive, taking away swelling and œdematous Tumours of the feet, being mixt in a Bath which is called a *lave-pieds* or *feet-washer*, because it resolves and allayes the inflammation and heat of spirits attracted and irritated in these lower parts, either by toyl and wearinesse or indisposition of body.

The *preparations* commonly made upon Allom are, *purification* or *chrystallization*, *Calcination* or *Ustion*, *Distillation* and *Extraction*, or *Subtiliation*, of each of which Operations we will give some Examples, that the Artist may fully be instructed both of the Work and vertue of the Remedies resulting from the same.

Purification of Allom.

THe Purification of Allom, is not made upon the bare intention of separating the impurities and earthlinesse of it, but the son of Art must have a more excellent prospect and end in it, which is the correcting of its harsh, austere and unpleasant taste; to attain to this, dissolve as much Roch Allom as you please in distilled Rain-water, heated before in a glazed earthen pan, for Allom must not be put in any metallick Vessel because it immediately works upon it, and by its acid and penetrating spirit drawes the taste and Tincture thereof. The Allom being dissolved, filtrate it, and evaporate afterwards the superfluous moisture in a slow heat, like unto that of the boyling vaporous Balneo until it contracts a skin; then put the Vessel in a cool place to cause the Chrystals to shute, and go on in evaporating and chrystallizing until no more Chrystals will come; this Work reiterate four times, and so shall you have a subtile and pleasant Allom if compared to common, which you may administer both inwardly and outwardly with much more successe, safety and delight.

The Calcination or Uſtion of Allom.

IT would not be worth while to ſpeak of this Operation by reaſon of its eaſineſſe, unleſſe we had ſome notes and reflections to make upon; for there is none but is capable to put a piece of Allom upon an Iron plate, and to give fire under it until the phlegm and ſpirit be evaporated away, and that this piece which was ſmooth, heavy, clear and compacted is become light, opacous, ſpongious and white. And now ſince the Artiſt hath need of the phlegm and ſpirit of Allom, and that the ſubſtance remaining after they are extracted by diſtillation, hath the ſame vertue with that which remaines upon the Iron plate, it will be much more convenient to diſtil firſt the ſame in order to Calcination, whereby to preſerve the phlegm and ſpirit, which otherwiſe are waſted without any advantage. Burnt allom is very good to conſume by degrees and without pain, the moiſt and ſpongious fleſh and excreſcencies of the lips of Wounds and Ulcers; it is good alſo to hinder corruption, becauſe it deſiccates and reſolves their ſuperfluities. The fixed ſalt of Allom is alſo drawn from it, as we ſhall ſay after we have ſpoken of the diſtillation thereof in order to calcine it.

The Diſtillation of Allom.

℞ As much Allom as you will, and put it in ſmall pieces in a capacious glaſs Retort, filled with it to a third part, place it in ſand, and adaptate to the neck of it a large Recipient, give it fire by degrees to draw the phlegm thereof with a well and duly graduated fire, and when the white vapours ſhall begin to come forth out of the neck of the Retort, change the Recipient, and encreaſe the fire by degrees until all the ſpirit be come forth, and you ſhall finde your calcinated Allom in the bottom of the Retort. But this Spirit being unpleaſant and of an ill taſte, hath need of being rectified, corrected and ſweetened, which is performed

formed with the spirit of Wine, with which it must be rectified three or four times, so it becomes sweet and pleasant, and an excellent Remedy to mingle in the ordinary Drink of Febricitants, because its little sharpnesse and quicknesse, doth cool and temper their predominant heat, and allayes their thirst. But if it be good inwardly applyed, it is no lesse successeful outwardly; for it cleanses and heales wonderful well all Ulcers in the mouth, and particularly those small Ulcers called *aphthæ*, or *the sore mouth of sucking children*. The Dosis must be from iv. drops to x. in Wine or some convenient Decoction. The phlegm of Allom is good to temper the inflammation of the eyes, as also that of Phlegmons or Eresypela's; it is also very useful to wash and foment Wounds, Ulcers and Burnings.

How Allom may be turned into a liquid Magistery.

℞. As much purified and chrystallized Allom as you will, put it in a glass Cucurbite and sprinkle it with distilled Rain-water, and put the Vessel in a cold place, until all the Allom be resolved into Liquor; which filtrate and distil in ashes to a dry bottom; sprinkle again the remaining Allom with distilled Liquor, and let it dissolve again, and so distill to a dry bottom as before, going on thus sprinkling, resolving and distilling, until the body of the Allom be all converted into Liquor, and come through the nose of the Limbeck, which is that we call *the liquid Magistery of Allom*, or to speak more properly, *his true astringent Spirit*; for this Remedy is one of the noblest and surest Stipticks and Astringents to be found amongst all Physical Preparations, not inferiour to Martial Remedies, Bolus or any other, whether for inward or outward application, as experience will make evident. The Dosis inward is from iv. to xij. drops, in immoderate Fluxes, Gonorrheas or heat of Urine, the Venereous stain being first taken off by some excellent Purge appropriated to the Person or the Disease. It may be mixt with hopes of a speedy and hasty successe in *Epulotical* Waters, for nothing advances better Cicatrization and re-union of the several solutions of continuity.

How Sugar of Allom is to be prepared.

PUT ℔ ij. or iij. of Allom in a good glasse Retort, which place in sand to draw off softly the phlegm of it in a well graduated heat; as soon as this is done, remove the fire, and the Retort being cold, cohobate the phlegm upon the desiccated Allom, and digest them together in a simple heat of the vaporous Balneo the space of 24 houres: this done, put the Retort again in sand, draw off the phlegm from it, and thus seven times consecutively reiterate the cohobation, digestion and extraction of phlegm, which being performed, put that which after the seventh separation of the phlegm remaines in the bottom of the Cucurbite, in a Cellar or some other cool place to dissolve it into Liquor; the dissolution ended, filtrate it cleanly, and put it to digest in a double or circulatory Vessel in ashes in a slow heat, the space of twelve natural dayes; after which, having placed it in a Cucurbite in ashes, you must distil off all the moisture to a dry bottom, and there shall remain the sugar of Allom, which is a particular Remedy against Diseases of the Breast, allaying also Toothach applyed upon the Gums. Above all, it is of singular use for those whose Brest is infected with any metallick, mineral, arsenical, mercurial vapours, or the like. The Dosis must be from v. to xv. graines in Broths, or some Pectoral or Diuretical Decoctions. It serves also to allay thirst in Feavers, and is of singular comfort to them that feel heates and periodical paines about the Region of the *Sternum* or the upper part of the Brest, by reason of malignant, sharp and biting serosities, which the Venereous infection sends ordinarily in these parts to such as have long had the stain upon themselves; it works by Urine, spitting, sweats, and an insensible and natural transpiration.

The salification of Allom.

TO obtain the fixed part of Allom, ℞ lib. j. or ij. of the *Caput mortuum* of the distillation of the spirit of Allom, and put it in a Cucurbite; then pour upon it distilled Rain-water six fingers high, digest it in ashes in a moderate heat, which must be encreased by degrees, till the Liquor begins almost to boyl; stir it from time to time with a wooden Slice, then filtrate, and evaporate the filtration in the vapour of a boyling Balneo, in a gray earthen or white earthen Dish till the skin begins to cover it, then let it stand in a cool place and there shute into Chrystals, or evaporate it to a dry bottom, stirring continually till it quite dry. This Salt is much more active then burnt Allom, because it is separated from its earth, and for this reason may be applyed in much lesse quantity to the same uses. It may be also internally given to those that have a stomach stuft with slime or other foulnesse which deads and duls the appetite: for it will cut them, attenuate and expel, either by stool or vomiting. The Dosis must be from grain vj. to xij. or xv. in Broth or decoction of wild Endive, or Spanish *Scorzonera* Roots.

Extraction of Allom.

℞ lib. vj. of very pure and clean Allom without any previous preparation, bake it in an earthen unglazed Pot in a very moderate heat, until all the phlegm be vapoured away, then encrease the fire by degrees, so as both the Pot and Allom in it may grow red glowing hot on all sides; which done, have in readinesse in a great earthen Pan lib. iv. of distilled Vinegar, wherein you shall throw this calcined Allom glowing red, and the Vinegar will draw immediately and take to himself the Essence and Magistery of Allom, and the remainder of the body will precipitate it self in the bottom of the Pan into a white powder, which after separation must be washed to a sweetnesse, or edulcorated, then

then dryed and so kept for use. But the remaining Vinegar impregnated with the vertues of the Allom must be filtrated, and having joined to it ℥ ß. of Tincture of Elder berries made with its own fermented spirit, put all together in a Cucurbite in *B. M.* and draw by distillation all the superfluous liquor to a consistency of boyled Hony or Syrup; then place your Cucurbite in a very cool place, and there letting it rest four or five dayes, you shall finde by this time Chrystals framed in this Liquor, which separate and dry, and proceed in the evaporation and chrystallization until no more Chrystals will shute. These Chrystals are Sudorificks, Diueticks and Stomachical, and therefore a good Remedy against the Scurvy; they may be administred twice in the week, in decoction of Nettle Roots; or juyce of Chervil well depurated and mixt with a little white Wine; it may also be given three times to those that are molested with Tertain Agues a little before their fit in the same Liquors: the Dosis is from vj. *gr.* to ℈ j.

Of Armoniack Salt and its Chymical preparation.

THere is mention made in ancient Writers of a natural Armoniack Salt, which was wont to be found in the *Lybian sands*, there formed and sublimated as they say, by the mixture of the stale of Camels used in their *Caravanes*, and making for the most part their Stations and Baitings in places appointed for that purpose. But we have none of it for the present, and know none other but that which is artificial and compounded of common salt and *sal gem*, salt of Soot and of Urine; this salt hath a harsh taste, mixt with an acid bitternesse very subtile and biting. Chymists do call it *the solar Salt*, *the white Eagle*, *the white Mercurial Rain*, and the Philosophers *Mercurial Salt*. That which is purest is to be preferred in choyce, as also the cleerest and whitest. That which comes from *Venice* is the best, and the second in order of goodnesse is that of *Antwerp*, the courcest and worst is that which comes from *Holland*. The general vertues of it are, to provoke Sweat and Urine, and to work also by insensible transpiration: it is of very great efficacy against all aguish distempers, and

and chiefly against Quartans, it resists corruption and putrefaction. The Dosis is from iv, grains to ℈ j. It is used also outwardly against Gangrenes, and to consume the superfluous and corrupted flesh. It is also very good used in Gargals against the Quinsy; and moreover, it is mixt in waters for sore eyes.

Moreover, the Artist must note, that Armoniack Salt is one of the most powerful Agents amongst all Chymical Operations, for extracting the sulphurs of Metals and Minerals by the help of sublimation: wherefore it is not without very good reason, that the greatest part of the most famous Writers in our Art, have disguised it with several ænigmatical and figurative appellations.

The *preparations of* salt Armoniack are, *purification or chrystallization, sublimation, calcination, distillation and liquation*; we will treat in the sequel of this Discourse of all these Operations in particular, and will give examples both of the Remedies and the manner of working, that the Sons of Art may be so well instructed by it, as not to be surprized with the several changes that use to happen by the mixture of this salt with sundry different matters upon which it operates with so much efficacy, that it ravishes with wonder even the most knowing in those mysteries which it opens, and drawes from the bosom and center of natural beings: and chiefly becaus this Salt is compounded of several parts which are united amongst themselves, and produce a Salt quite different from all other salts, and which consequently operates in a very different way, as it will evidently appear to those that shall put it in practice.

The Purification and Chrystallization of Armoniack Salt.

THis Purification is not made otherwise then by dissolving it with distilled Rain-water in a slow heat, after which filtrate and evaporate in the same heat; then put it in a cool place to shute its Chrystals, and thus continue until you have extracted all your Armoniack salt fair, pure and clear. This Salt hath not any greater efficacy then common Armoniack in Cakes, though it be something purer: wherefore we will not attribute also more vertue, nor prescribe any other Dosis.

The

The ſublimation of Flowers of Salt Armoniack.

℞ As much melted Salt as Armoniack, and mix them exactly together; then pour this mixture into a Matraſs or Cucurbite, and ſublime it in aſhes, reiterating this ſublimation four times, to purifie, ſubtiliate and volatilize the better the Armoniack; ſome will have a like proportion of Filings of Steel mixt with the Armoniack that they may ſublimate together; but they are deceived: for when the armoniack ſalt is mixt with *Mars*, it preſently works upon, and the ſalt corrodes all the Steel, whereof there may be made afterwards a very good Vitriol: But as the intention of thoſe that add Steel to this ſublimation, is only to make the Flowers of this Salt more inciſive, aperitive, more ſplenetical and hepatical; our advice is to the ſons of Art, to mix a fourth part of this opacous and greeniſh or blewiſh Vitrification, which is found in Iron works or Furnaces, where the firſt fuſion of the Mine is made, or as much of thoſe ſcales which fall from Smith's Anvils: But let him note, that neither of theſe two ſubſtances muſt be made in very ſubtile powder; contrariwiſe, it will ſuffice to have it courſly beaten, that the Armoniack may only lick it over in the action of ſubliming, and ſo draw only the ſoul or a portion of the internal ſulphur of it, by which it is much encreaſed in excellency and vertue: The Artiſt muſt conſider, that as theſe Flowers are more ſubtile and penetrating then Armoniack ſalt meerly purified and chryſtallized: ſo muſt it conſequently be endowed with much more vertue, and particularly when this ſalt is made uſe of againſt Quartan and other intermittent Agues. Theſe Flowers are alſo of ſingular uſe to correct the crudities of the Ventricle, and remove ill fermentations, if every morning the Patient takes of it faſting in a Glaſs of Wormwood Wine, or in infuſion of Saſſafras wood, made in white Wine: But the uſe of it muſt be continued the ſpace of fifteen dayes or three whole weeks. And if this Remedy be given againſt Leucophlegmacy, or the beginning of any kind of Dropſie, which ordinarily followes after long Diſeaſes, and the various

various agitations of dangerous Feavers; you must take care that the Patient be in his bed when the Remedy shall be administred unto him, and that he be well covered to help the provocation of sweat, and at his coming out of it, let him take some nourishment of easie digestion, and above all be carefully rubbed and dryed, by reason of the ill impressions which these sweats do communicate to the linnen wherein the Patient is wrapt; and might easily raise some malignity upon a skin which is yet open and doth exhale some noxious vapours, and capable yet to do hurt. The Dosis of these Flowers, is from iij. graines to xv. and if the strength of the Patient can bear it, even to xx. chiefly if he hath been used to it before, encreasing the quantity by little and little.

The Calcination or Fixation of Salt Armoniack.

WEE have ever had a care sufficiently to inform our Artist, that he must lose nothing, of what the substances whereupon he works may afford, that is good and useful in themselves. For which reason we cannot admit, that he should fix or barely calcine the Armoniack salt in an earthen Pot, in a circular fire and a wind-Furnace; because he loses by this way all the volatile urinous spirit which is contained in this Mysterious Salt. Wherefore we prescribe the operation of it to be made in that kind of open Retort, which *Glauber* doth describe in the second part of his Philosophical Furnaces: for by this means, what flies otherwise unnecessarily away into the ayre, is preserved: you must then proceed in it in the manner following.

℞ j. p. of quick-lime well chosen and that hath not been exposed to the ayre, and j. p. s. of Armoniack salt; reduce them each severally to powder, then mix together, and incorporate to a Pap with new made Urine: but before you begin this mixture, kindle the fire under your Retort, and make it so red, that the Lead which is in the hollow channel, and is intended to be a Lute to the Cover, be melted: things being thus disposed, put a small spoonful of this matter at once in the Retort, and cover it immediately with its Cover, and the vapours will instantly

ly run into the Recipient, which must be fitted to the neck of it, and the same exactly luted. Go on in this manner until all the matter be consumed, or until you have enough of volatile spirit, if your intention be to extract it, or until you have sufficient quantity of Armoniack salt fixt or calcined, if your intention leads no further. Then draw the spirit out of the Recipient and rectifie it; and of this we shall speak again hereafter in the distillation of Armoniack salt; but draw the lump remaining in the Retort whilst the fire is yet in its strength, for then it is soft, and may be taken up easily with a small Iron Ladle, having a handle somewhat long. Dissolve and digest the same matter in Rain-water; then filtrate the liquor, and so proceed on till no more salt will come from it; then evaporate all the filtrated liquors to a dry bottom, stirring them continually towards the end until all the moisture be gone; you may keep some part of this salt wholly dry in a Viol exactly stopt, and put the other in a Cellar to dissolve in liquor, which will be fit for extracting several Tinctures, as the salt may serve for Cementations. We say nothing concerning the Dosis of this fixed Salt, because it is never inwardly used in Diseases. The dissolved Liquor may nevertheless be used externally to mollifie and resolve Cornes and Callous or hard excrescences growing in the feet, and often very troublesome: it may also be used with a little spirit of wine to rub and chafe the hard and knotty places of the Gout, to resolve, soften and attenuate the hardness of that tartarous and sticking matter contained in those Nodosities.

The Distillation of Armoniack Salt.

MAny Authors have Equivocated upon the Distillation of this admirable Salt; for some would have the volatile Spirit to be the principal part of this mysterious Compound. Others thought the acid Spirit only could yield what the ancient Philosophers did search in it: We must confesse both Parties to have many reasons on which they seem to be grounded: but they have not yet well decided the Question, because those that did endeavour to clear it most, have not took well enough into their con-

consideration the double nature of Armoniack salt, which is compounded of common salt that is acid and as it were fixt, and of the volatile salt of Urine: Now the union and mixture of these two Salts is so strict, that it is very difficult, yea almost impossible to turn them over the Helm into liquor one with the other: but contrariwise, the urinous and volatile salt carries away the body of the acid, which produces no more then the sublimation of the same salt. But they that have attempted to possesse them both together, could never attain to it with successe but by the addition of some other body, which had the faculty to keep back the acid salt, to let the urinous spirit and volatile salt of Urine ascend, that are both but one and the same thing, as it appears by the sublimation of the same spirit into a body of volatile salt. It would nevertheless be an excellent Remedy, if Art could have attained to raise this Armoniack salt to a Spirit, equally partaker of the vertues of the Volatile and of the common salt without any forrain or strange mixture: because that as the action of these two salts one upon the other hath produced a salt quite differing in taste, smell and vertue from the two taken asunder, so should we have a subtile and penetrative spirit, which would be capable of many Rare effects in Physick, and useful for the preparation of many other noble Remedies, if once Armoniack salt could be made to ascend into a Spirit endowed with the vertues which do constitute it. But as many have attempted this Operation without successe, so do I finde my self forced to acknowledge here my ignorance, and say, that we must be contented wi h the Flowers of salt armoniack, until some more skilful Artist hath improved our knowledge and experience, or our own industry and labour discovered more unto us, to impart it afterwards to the Common-wealth of *Hermetical Physick*. We will nevertheless deliver two wayes of drawing the spirit of Armoniack, and its volatile urinous salt; the first shall only teach how to draw the spirit alone, and the urinous salt only: but the second shall teach the separation of its acid spirit, which possesses much more of vertue then the spirit of common salt, by reason of the mixture and working of the volatile salt of Urine, which hath blunted and kil'd part of its corrosive faculty.

To make the Spirit and volatile urinous Salt of Armoniack.

℞ ℔ j. of well chosen Armoniack salt, and as much of well purified Tartar very dry; beat the Armoniack to powder in a warm Mortar, and then add to it the salt of Tartar exactly mixed; this mixture put in a glass Retort with a wide neck, and placing it in sand, fit to it a large Recipient, and give it a gradual fire; and in a short time you shall have a volatile spirit coming over the Helm in liquor: the salt will sublimate it self into a clear substance as white as Camphire, and this Operation may be ended in three, four, or five houres at the most. The volatile salt may be dissolved with its own spirit, and they both kept together for such uses as we have said the spirit and volatile salt of Urine to be good, it being one and the same thing; this more only we have to add, because it is a thing of the highest concern, that as this volatile salt and spirit do more then any thing else correct and hinder putrefaction and corruption, and that the poyson or venom of the Plague and all analogous Diseases unto it, is corruptive and putrifying, killing by his evil fermentation the natural spirits; so must Physitians have a care to use this admirable Remedy, as much to preserve bodies from that fearful scourge and malady, as to hinder the progresse of it when it hath already begun to rage and spread its infection. We will likewise say that this volatile salt and spirit are more subtile and penetrating, and of a kinder taste and smell then those that have been extracted out of plain Urine, because they were not fermented and depurated by common salt: wherefore we do particularly recommend them, to preserve the stomach from that putrefaction and corruption which is generated by the vice and defect of the digestive faculty; as also to destroy and quench all evil acid fermentations in the Ventricle; it is likewise good in fits of the Mother against Epilepsie, and Apoplexy, inveterate diseases of the Head, and it will produce surprizing and wonderful effects.

How

How the spirit of Armoniack Salt is to be extracted.

THough we have already shewed how the son of Art may extract the spirit and volatile salt of this Mixt, yet we cannot shew how the acid spirit of this Mixt is to be extracted, without separating from it at the same time the volatile spirit thereof. And as we have already declared the manner of that Operation above, when we spake of the fixation of Armoniack, we will not insist upon a needlesse repetition of what we have once already said: only we will add, that you must put here equal parts of good quick-lime, and armoniack salt, and reduce them to a pap with Urine, then distil it in a glowing hot Iron Retort, and proceed as we have said above in the quoted place. The Artist must put all the liquor he shall finde in his Recipient after distillation in a Cucurbite of a Cubit high, and narrow in the neck, placing it in *B. M.* and covering it with a Limbeck Head exactly luted, as also with the Recipient which must be added unto it; then give it a graduate fire, that all the volatile spirit and volatile urinous salt may separate it self and rise with the heat, and when no more will ascend, put the remaining liquor in a Retort, and rectifie it in sand, and you shall have an acid spirit much pleasanter then the spirit of common salt, and endowed with the same vertues; wherefore we refer our Reader to what we have said above: the Sons of Art must only note, that this Spirit in respect of that of common salt, may be compared to a perfect Man, and that which proceeds from common salt can only be resembled to a Youth; from whence he may draw those consequences which we only intend to insinuate unto him by this Comparison. The spirit and volatile salt drawn by this Processe, is endowed with the same vertues as we have related above.

The

The Liquation of Salt Armoniack.

THis Operation is not very myſterious, being nothing elſe but the reſolution of armoniack ſalt fixed by quick-lime into liquor in the cool of a Cellar, or it is alſo the reſolution of the ſame armoniack ſalt purified, chryſtallized and reduced to powder, put in whites of Eggs newly boyled to a hardneſſe, and ſet it in order in an earthen Pan in a Cellar to extract the Liquor, which Artiſts do call *water of armoniack ſal*: theſe two Liquors made by Reſolution are not for Phyſical uſes, unleſſe they be us'd in Metallick Preparations, and Minerals, which they either fix or open according to the purpoſe and intention of the Workman.

Of Vitriol and its Chymical Preparation.

WEE have demonſtrated in the beginning of the Chapter Metals the firſt and immediate principles of Vitriol; wherefore we refer thereunto our Artiſt, to ſpeak only here of Vitriol reduced into a body either by Art or by Nature; for ſome Vitriol is found ready prepared and chryſtalliz'd in the Earth of Mines where Metals do abound; as ſome is to be ſeen which curious ſearchers of Nature have brought from the *Indies*, *Hungary*, *Germany*, *Italy*, and ſeveral other parts of *Europe*: But there is alſo an artificial Vitriol, which is extracted from vitriolick Marcaſſites, commonly found in fat Grounds, alwayes about the places abounding & with pregnant metallick ſeeds, and enclined naturally to the generation of Sulphur. They that ſhall be led by a Philoſophical curioſity to inſtruct themſelves further in this matter, muſt ſeek in places where the fat Clay for making of Tyles and Bricks is extracted, and there may finde ſome of theſe vitriolick Marcaſſites, which are nothing elſe but what the *Greeks* call πυρίτης, and we a *Fire locks*, *Flint*, *Thunderbolt*, *Fire-flint*, and the Tile-Bakers *Machefer* — Having got of theſe ſtones, let them examine

examine them by fire, which shall discover to them nothing but a sulphureous substance, by the vapours striking their Nostrils and seizing upon the Brest as burning Brimstone: but having exposed the remainder in the ayre, it will dissolve it self into a gray and blackish powder, which will sublimate upon its superficies, small, white and sharp excrescences melting in the mouth, and yielding at first a sweetnesse, which ends in a vitriolick harshnesse and austerity; then dissolve this powder in Rain-water in a slow heat, filtrate and evaporate it to a Pellicule or skin, and let it chrystallize and you shall have an excellent greenish Vitriol. With this short and superficial Antimony, the Artist may satisfie himself, and know in part by the severing of this stone the way by which Nature did proceed in bringing the parts the eof together, and coagulating of it.

The most learned Writers which have treated of Vitriol, and best known and apprehended the nature thereof, do all unanimously confesse and acknowledge it to be a Mixt of so extensive a vertue as to be sufficient to supply with Remedies the third part of all Physical Practice, and even capable to make up a compleat and well furnished Shop. *Basilius*, *Valentinus*, *Bedro*, *Paracelsus*, *Sala*, and many others cannot be large and diffusive enough in its praise and commendation; and those Hermetical Philosophers, which have bestowed upon it that excellent name of *Vitriolum*, have done it as they say, because the putting together of those Letters contains (allowing a word to each of them) the mysteries which this mineral Salt conceals in its Center. *Visitabis Interiora terræ, Rectificando invenies optimum Lapidem, veram Medicinam.* These words do insinuate where Vitriol is to be sought, how prepared, and extol the Remedy which is to be found in it. But Vitriol being so well known, we think it needlesse to bestow more time in speaking of its various names and appellations; it will suffice to declare the choyce, and the general vertues of it, before we come to the preparations which Chymistry hath found upon this noble and excellent Compound; which properly is nothing else but a mineral Salt near kin to metallick nature, and chiefly to Copper and Iron, or ♀ and ♂. *Venus* and *Mars*. There is three several kinds of it, which contain many other species under them. For first of all there is the blew Vitriol as blew as a Sa-

phire,

phire, in hard, clear, solid and dry Chrystals, called commonly *Cyprus Vitriol*, or *Hungarian*. There is a second kind, greenish, of grass colour, lesse compact and in lesse Chrystals, broken into corns almost as common salt, something unctuous and sticking to the hand when it is toucht, though it hath but little of moisture; such is that which is extracted in the *Countrey of Liege*, made about *Spa*, where are acid, sulphureous and vitriolick springs; but great care must be had not to be surprized and deceived by that which is of a blewish white, and very small corns and wetting the hands of those that touch it, because this is the very worst of all. The last and third kind of Vitriol is that which is white, and is found in small cakes at the Druggsters shops, compacted, hard and dry, which we call in *France white Copporis*, commonly made use of for Vomits and Eye-waters. Our Artist must take for the subject of his work of the second kind of Vitriol, if he will extract such Remedies from it, as his hopes do lead him to: for the first kind which holds of Silver or Copper, hath too much of metallick earth, and very little of acid spirit. The second which is blewish, is a luminous and terrestrial, and hath scarce any good acidity in it, but only a course and excrementitious earth, which has little or none of metallick Tincture: wherefore let him still generally chuse of the second for his operations, unlesse he hath some peculiar intention of his own, or that the Author which he follows doth tye him to it, and prescribe positively so.

After the choyce of Vitriol we must come to the proprieties and general Vertues thereof, which are to heat, desiccate, astringe or bind, and excite violent vomiting, constipate, open, and kill wormes. As for external applications it provokes sneezing, if put in the nostrils, and applyed to the orifice of the Vessels open, or to wounds, doth stop the blood. We have also spoken more particularly of the vertues of Vitriol in the Chapter of Metals, when we treated of Copper, whereunto for more satisfaction we send back our Artist.

The general preparations which Chymistry teaches upon Vitriol are, *purification*, *calcination*, *distillation*, *sublimation*, *precipitation*, *salification*, *extraction*, whereof we will give examples that the Artist may afterwards be capable to seek by himself in this noble Mineral, those Vertues and Wonders which God and Nature for the help and ease of mankind have concentrated in it.

Of

Of the Purification of Vitriol and manner of Preparing the Gelly.

WEE have so often already made mention of the Purification of Salts, that it will be no difficult matter to lead the Artist to understand that of Vitriol: it is performed two several wayes and upon two several intentions. The first is but a plain dissolution of Vitriol in Rain-water, followed with filtration, evaporation to a Pellicula or thin skin and chrystallization. The second must be done in distilled *May* dew-water; but the dissolution and filtration being made, the Artist must put his liquor to digest in *B. M.* during the space of a Philosophical moneth, and he will finde a skin separated by the liquor on the top of it, and feces precipitated in the bottom, which must be yet separated by filtration, and this digestion continued until the Vitriol doth cast forth no more impurity; after which evaporate it slowly and chrystallize. The first chrystallization or purification takes only away the superficial and outward foulnesse; but the second separates the very central impurity; The first Vitriol may be made use of in all common and vulgar operations, but the second is to be kept for extraordinary preparations, which are the Tinctures and Arcana's.

The Son of Art shall meet also in several Authors with a kind of preparation they call *Gilla*, which are only fit for Vomits, and are nothing else properly, but purified Vitriol separated from their metallick earth: but as these Remedies are for the most part violent, and particularly the *Gilla* prepared with blew Vitriol, my advice is to abstain from them, and to make use of the purification of white Vitriol, which is done by dissolving of it four times in a little Centaury water, filtrated, evaporated, and reduced to Chrystals: for this Water doth not only encrease its emetick faculty, but moreover doth specificate it to become an excellent Remedy against Feavers. The Dosis may be from x. grains to ℈iv. in Broths, lukewarm Beer, some Decoction or convenient Water: it provokes vomiting very gently, and cleanses

ſes the ſtomach from all impurities and foulneſſe, checking the appetite, and cauſing diſguſt of meat, headach and fluxions : it is good againſt diſeaſes of the Ventricle, tertian Agues and quotidian Feavers, wormes in the Belly, Plague and growing Epilepſie.

The Calcination of Vitriol.

THe Calcination of Vitriol is performed ſeveral wayes and for ſeveral intentions. But amongſt the Calcinations of Vitriol ſome are rather to be called *Exſiccations*, as that which is made by the Reverberation of the Sun-beames in the Canicular dayes, to prepare that famous and ſo much celebrated Magnetical Remedy, which is called *Sympathetical powder*. There is likewiſe an Exſiccation made in the Sun in a Pan, or upon the top of an Oven heated every day, to deprive it of its ſuperfluous moiſture, and make it ready afterwards and ſerviceable for diſtilling of *aqua fortis*, and for ſeveral other Chymical Preparations. But as the chief ſcope and intention of the Sons of Art is to reduce Vitriol into Colchotar, and that this intention is fully accompliſhed and attained unto in the diſtillation of Vitriol, I do not finde it neceſſary to loſe by violent ignition in an open fire, that ſubſtance which flyes from it, ſince it hath very good uſes in Phyſick's ; wherefore we will not inſiſt to deliver the manner of it which is too plain to be unknown ; but we will ſhow how Vitriol may be calcinated by a noble Philoſophical Calcination, without loſſe of any of its eſſential proprieties, provided your preſcriptions in this particular may be exactly followed.

The

The Philosophical calcination of Vitriol.

℞ Vitriol purified by digestion, in the manner we have declared above; dry it between two Papers in a very slow heat, until it turnes of it self into a dry powder, which must be put in one or several Matrasses with a flat bottom, the thicknesse of a shilling or a little more, or of the back of a Knife, observing well this prescription, otherwise it might come short of your design; heat the Vessels Hermetically, and put them in ashes as deep as the matter is high, and about half a finger above; then give it a fire, which must not exceed the Suns heat in Summer, and without any interruption continue the same during the space of a Philosophical moneth which is 40 dayes, and thus the Vitriol will by degrees from a white colour passe into a yellowish, and from yellow to a red, which comes to the height of blood reduced to powder; then remove the fire, break the Vessels, and keep this Philosophical Vitriol as a rare and excellent Remedy, both inward and outward, possessing in it self the true soul and Tincture of this Mixt, which may be extracted with the true alkohol of Tartarized Wine, if the Artist hath the gift of patience, and takes not the shadow for the substance and body.

The distillation of Vitriol.

WEE will not teach here the bare Distillation of Vitriol, to draw thereof an acid or corrosive Spirit, which commonly and improperly is called *its Oyle*: but our intention is to make an exact anatomy thereof, that the Son of Art may the better apprehend what are the several parts thereof, and his judgement by consequence be well and duly informed of the substances which are extracted from it, and of their Medicinal faculties.

To prepare the Dew of Vitriol.

℞ As much as you will of purified Vitriol, put it in a broad mouth Cucurbite only eight inches high; place it in *B. M.* and having covered it with a Limbeck-head, and fitted a Recipient, the joints well luted with a bladder wetted with white of Eggs, give it fire by degrees untill the water of the Balneo doth boyl, and thus proceed in this distillation until this degree of heat drives no more liquor, and no more drops will fall. What you finde in the Recipient put in a bottle, which stop with Wax and Bladder, by reason of a little of the volatile spirit mixt in this Dew, and wherein doth consist its greatest vertue; it is given from ℈ j. to ℈ ij. and iij. in Broth or some other convenient Liquor, to those that are troubled with Megrim and other paines in the Head; it allayes the heats and ebullitions of the blood, and strengthens the entrals.

To draw the acid Water of Vitriol.

AS the Artist must work with method and study, if he intends to make any progresse; so likewise must he be a good Husband of his time, fire and Vessels. Wherefore let him have a Furnace in readinesse with a sand Vessel or *Capsula*, and the sand warm in it; when he perceives that the *B. M.* drawes no more of the substance of the Vitriol, because it is a token to him that the matter hath need of a stronger degree of heat to be driven to yield any thing more; let him then draw the Cucurbite from the Balneo, and wipe it to take off the moisture from it, and place it all warm and luted upon one inch and a half thick of warm sand, and let him put of the same equally warm round about as high as the matter goes; then the Recipient being fitted again, let him encrease the fire by degrees until the head of the Limbeck be filled with white vapours, and that no more drops of the liquor shall fall from the nose of it; then let him remove the fire from the matters

ters and Furnace. Put also the liquor which is in the Recipient in a bottle, and stop it as the other: for it is not an useless Phlegm as many have conceited, which did despise it and throw it away, not well versed with the anatomy of Vitriol and the knowledge of those Liquors which it yields by distillation. This water hath but very little acidity in it self, but participates already of the aperitive and anodyne vertue of Vitriol; which make it to be very successfully used for the cleansing of the Reines, and softening and allaying of all inward corrosions. It quenches the thirst of feaverish persons, and provokes Urine abundantly. This Liquor is also very good for washing of the eyes, if you add a little salt of *Saturn* with it; it takes away also inflammations, and allayes the grief of corroding and malignant Ulcers, if they be washt with it warm; and having a little of salt of Tartar mixed with it, it takes away itching in the skin and drives away scabs.

To make the acid Spirit and corrosive oyle of Vitriol.

TAke the dry matter left in the Cucurbite, after distillation of the two forementioned Liquors; beat it to a course powder, pour the powder in a glass or earthen Retort, cover it with one finger thick of such a composition as may withstand the most violent fire; place this Retort in a close Reverberatory, and fit to it a capacious and large Recipient, which must also be well luted, and the Lute being dry, give it a graduate fire as we have taught, when we treated of the distillation of spirit of Salt; but the fire must be driven much higher and longer with the flame of a very dry wood; for it must be continued three dayes and three nights without any interruption, so as the Recipient may still remain full of white clouds and vapours, and that at the end drop down red and blackish drops, which grow clearer towards the end, by which you may perceive the operation to draw to an end, and that the fire hath drawn from the matter, as much as the Artist may and ought to hope for, though some weary themselves unnecessarily, continuing the fire without intermission twelve or fifteen dayes: but they betray their skill in so doing, and show how ignorant

they

they are of the matter upon which they work, and much more of the sphere of activity of the flame of fire which they made use of; you must then remove the fire when you perceive the signes we have noted, and begin to moisten the Lute in the neck of the Recipient with a little warm water, unless you will stay till the next day which would be best: go slowly to work for fear of breaking any thing, and by an overhasty precipitancy losing on a sudden what hath cost so much labour and charge: draw then the Recipient slowly away, and what you finde in it pour in a glasse Retort, which having placed in sand, and fitted a Recipient unto it, give a gradual fire until the drops begin to fall down, which taste from time to time, to change the Recipient assoon as you perceive them to have an acidity, and after you have drawn two parts of the liquor which was in the Recipient, remove the fire, and so shall you have three Liquors: the first whereof shall almost be of an insipid taste, but with a sulphureous smell, which is a token of the volatile spirit, and this mix with the sowr Liquor, or keep by it self for the same uses. The second hath a pleasant and penetrating acidity or sharpness, which is that they properly call *the acid spirit of Vitriol*, used in Physick: for it is Diuretical, Diaphoretical, Aperitive, Incisive, and resists to putrefaction and inflammations. Wherefore it is of wonderful vertue against all burning Feavers, occasioned by putrid and malignant matters, and also against obstructions of the Liver, Spleen and Mesentery; it is good to restore appetite, when lost; it strengthens the faculties of the stomach, and doth correct the defects of it: It asswages Toothach, if mixed with white Wine, and gargarized in the mouth; if you mix of this spirit with water of the juyce of great Celandine, and rub with this mixture the scurf in the head, it destroyes the root of it, and kills that ill, harsh and corrosive humour which doth infect the skin; it is given in Broths or ordinary Drinks of sick persons. The Dosis must be to a pleasant acidity or sharpness, for otherwise it would set the Teeth on edge, and prove troublesome to those that would use it.

Filtrate the Liquor remaining in the Retort after the distillation of the acid spirit through Glasse beaten to powder, for otherwise it would corrode all other substance, being altogether corrosive; put it in a double glasse Viol, and stop it with a glasse stopple very

ry close. This is called *oyle of Vitriol*, though improperly, since it is neither inflammable, nor unctuous: but the manner of expression of Writers must be followed, from whom this Liquor had its first denomination, being too harsh and violent for inward Remedies, and only fit and subservient to other Chymical works.

We will not speak here of the preparation of the sweet earth of Vitriol, called by some *Terra Damnata*, or damned earth, in regard it is destitute of its own salt; this earth and salt are extracted of the matter remaining in the Retort after the distillation of the oyle and spirit of Vitriol, which Chymists call by the name of *Caput Mortuum*, or dead Head. We shall defer to speak of these two particulars till we come to treat of Salification: the Artist must only expose this *Caput mortuum* to the free ayre, in a place not open to the Rain, that it may attract the influences of the heavens and of the ayre.

We could bring here the description of several compounded spirits of Vitriol, and specificated for some particular Disease: but we leave the choyce thereof to the skil and fancy of the Artist, or the directions which he shall finde in Writers which have largely treated thereof; we will only give for a taste two Processes or Preparations of it, by which he may be guided in any further work he shall intend or undertake thereupon. The first shall be a sweet and pleasant spirit of Vitriol, the second a very considerable Aperitive and rare Dissolvent, both proceeding from the same spring, but only brought by us to shew the variety and difference of Operation.

To prepare the Oyle or Sweet Spirit of Vitriol.

℞ ℔ iij. of calcined Vitriol between yellow and red, in an earthen Pot not glazed in an open fire; beat it to powder, pour it into a Cucurbite, and sprinkle it with good distilled Vinegar until it be reduced to a Pap; stir the Vessel without intermission, and pour in it new distilled Vinegar three fingers high; put the Cucurbite in a vaporous Balneo and cover it with a Blindhead, then during the space of three natural dayes, give it a digestive fire; the fourth day draw off the Vinegar by decantation, and pour fresh Vine-

Vinegar in the room of it, digesting again the space of three dayes, and extracting and taking off the Liquor by decantation; thus proceed seven times without omitting digestion; filtrate all the distilled Vinegar, which is impregnated with the vertue of the Vitriol, and put it in a Cucurbite in ashes; draw off the superfluous Menstruum by distillation with a slow and graduate fire to the consistency of decocted Honey; this make into Pellets with pebble stones calcinated to powder, these pellets put in a Retort and draw the spirit and oyle thereof, as they call it, with a graduate fire of the requisite heat; this distillation will require twenty four or thirty hours of fire, or thereabout. The Liquor which you finde in the Recipient rectifie in a glass Retort in sand, and keep for use. This Spirit or Oyle is of a pleasant and sweetish taste, having in it the vertues of Vitriol mixt with those of the subtile Tartar in the distilled Vinegar: wherefore it may be given with much successe in all Diseases proceeding from grosse and tartarous matters, as Scurvy, Gravel, great Pocks, Gout, Rheumatism's and Catarrhs, and generally in all Diseases abounding with malignant, grosse and sharp serosities, as in Leprosie, Scabs and Itch: for this wonderful Spirit doth rectifie the whole masse of the blood by Urine, Sweats, and insensible transpiration. The Dosis must be from ℈ j. to ʒ ß. in Broths, Decoctions, white Wine, or appropriated Syrups. The Theorical and Practical part of this Spirit might afford unto us a large field of speculation; but having already spoken of it when we handled the first Menstruum for extraction of the Tincture of Coral, where we made some reflection upon the action and mutual reaction of Vitriol and Tartar, we refer the Artist to that place.

The Tartarized Spirit of Vitriol.

℞ ℔ ij. of Vitriol well purified and only dryed, and ℔ j. of Tartar of *Montpellier* washed in white Wine and well dryed; beat them to powder each asunder, mix them exactly, and put in a glass Retort well luted, distil the spirit in a close Reverberatory fire with requisite precautions; especially take a care that the Recipient

Recipient may be very capacious, or put one with three mouthes, that there may be the more room to keep within bounds the furiousnesse of this Spirit which is very violent; drive the fire from 48 to 60 houres, and then cease. All what is come out rectifie in a Retort in sand three times at least, and keep this Spirit in a well stopt Viol. Then take the *Caput mortuum* which remains in the Retort, and put it to digest in the dew of Vitriol in the vaporous Balneo the space of 24 houres; separate the Menstruum by inclination; and begin the digestion with new Menstruums, until it comes off with the same taste as it was put in; filtrate all the extractions, and slowly evaporate them in ashes to a skin, then let it chrystallize: but it will be more expedient for husbanding of time, to dry all the saline matter into a white and pure salt in the vapour of a boyling Balneo in an earthen Pan or white earthen Dish: for you must forbear using metallick Vessels, because this salt doth easily and quickly contract the taste and colour of Metals; and if the salt did not prove white and pure enough, dissolve it again in new dew of Vitriol, and let it digest in a very gentle heat of the vaporous Balneo, that if any impurity should remain it should be precipitated to the bottom of the Vessel; the liquor must be filtrated in the cold, then evaporated and dryed slowly and cleanly. Put this salt in a double Vessel or Blind body, and pour upon it the rectified spi it thereof, stop and lute the Blindhead, and put it to digest and circulate in *B. M.* in a slow and moderate heat the space of three weeks, which being expired, open the Vessel, and pour into a Retort all the matter contained in it, having first noted the weight thereof, and distill it in sand, until it yields nothing more by encreasing of the fire; weigh the liquor which is come forth, and cohobate it upon the salt which did remain in the Retort, reiterate the distillation, and you shall finde the spirit to be encreased in weight, which is a token that the salt ascends into Spirit, cohobate and distil so long that all the said salt may come over the Helm; which done, put this spirit in a Cucurbite, draw off the same gently in ashes, then encrease the fire something more towards the end, and the salt will remain in the bottom of the Vessel, which having placed in sand, give it a subliming fire, then will the salt ascend insipid, pure and clean, leaving in the bottom its impurity and more cor-

poreal parts; put this salt in a Pellican, and having poured its own spirit upon it, lute the mouth of the circulatory Vessel with a glasse stople, whites of Eggs and quick lime; and digest and circulate this matter the space of seven natural dayes, and thus shall you have the most excellent and penetrating Spirit which Art can prepare, to which we cannot attribute enough of vertue and efficacy for preserving and restoring of health; for it is an universal Aperitive, which never will fail in time of need. They that shall be acquainted with his excellency, both in respect of Physick and of Chymical operation, shall never question the truth of what I say: but I must give advice to the Artist to carry himself with circumspection in this Operation, and not to grow weary of the length thereof, since he will receive in the end all the benefit and satisfaction which his hopes could entertain. This work doth not concern such as think themselves very great Artists, when they have attained to the preparation of Mineral Chrystal, Cremor of Tartar, and Crocus Metallorum; but contrariwise is worth the labour of those that are most consummated in the study, and most versed in all the passages of a Chymical Laboratory; and it is only for their sakes, that we have related here this excellent, but laborious Preparation, because they only know that, *Dii laboribus omnia vendunt.*

The Precipitation of Vitriol.

THe common settlement of the dissolution of Vitriol, is nothing else but a metallick earth and Oker, and is for the most part confounded with the true Precipitations, which are performed only by instillation of some kind of salts or spirits: but there is a great difference between the matters proceeding from them; wherefore we will speake of it with the requisite order.

To

To make the Metallick Earth or Oker of Vitriol.

℞ As much Vitriol as you will, dissolve it in a full quart of distilled Rain-water; this dissolution put in a great Matrass, and place it in a moderate heat the space of four dayes, and all the metallick earth or Oker of the Vitriol will fall in the bottom of the Vessel; separate the water by inclination, and wash this Earth, then dry it; it is used so for sublimation.

To make the sweet Sulphur of Vitriol.

℞ Of the purest of Vitriol you can get, and dissolve it in water of *May*-dew; digest the solution the space of seven natural dayes in a vaporous Balneo, filtrate it the eighth day, and draw off again half of the Menstruum by distillation in the boyling Balneo; draw out the Vessel whilst it is yet warm, and precipitate the sulphur contained in the Liquor with oyle of Tartar *per deliquium*, let the liquor grow clear by little and little, then draw it off by inclination, then by several effusions of distilled Rain-water edulcorate the remaining sulphur, and being exactly dryed, keep it for use. It is a very good Remedy against affections of the breast; it may be administred from ij. to x. graines in some Syrup, Lohoch, Lozenges, or Conserve appropriated to the Disease. It is also successfully used to mundifie and cicatrize evil Ulcers. It may also be sublimated.

To make the Purging Sulphur of Vitriol.

℞ ℔ ij. of Vitriol of Liege well deputated, mix it exactly with ℥ vj. of Filings of Steel very pure and clean, put this mixture in a great Matrass, and pour upon it sharp or sowr water of Vitriol four inches high, then put it to digest in *B. M.* the space of four dayes, stirring the Vessel five or six times every day: this done,

filtrate the liquor, and draw off one half by distillation in ashes, then precipitate the rest with oyle of Tartar made *per deliquium*; to ℔ ij. of the liquor pour on drop by drop ʒ v. of the oyle of Tartar, and proportionably if there be more or lesse: let the sulphur settle, then decant the clear liquor, edulcorate and exsiccate as we have taught above. This Sulphur is a mild and commodious Purgative, very good for those that have any indisposition in the breast or lungs, or do incline towards Consumption or hectick Feavers; it may be given from two graines to six, in Conserve of Roots of *Enula Campana*, or Conserve of the Berry of Eglantine, called *Cynosbatos*. But my advice is to those which would proceed yet more warily and with greater curiosity in obtaining the best Remedies, to digest this sulphur in a slow heat, in a Matrass seal'd Hermetically, during the space of 40 dayes, and it will encrease half in vertue, and the Dosis be lesse by half.

To make the fixed and volatile Sulphur of Vitriol.

DIssolve ℔ vj. of *Liege Vitriol* very well purified, in a sufficient quantity of distilled Rain-water; this done, put ℔ j. of Filings of Needles very clean in a glazed Pan, pour upon it this dissolution, and stir them together, and place the Pan in some position where the Sun may freely play upon, and there leave it until the matter doth grow thicker by degrees, which you must stir often, and at last dry up wholly; then beat it to powder, and add ℔ j. ℈. more of new Filings of Steel, and sprinkle it with distilled Rain-water until all be reduced to a pretty clear pap, which dry again in the Sun, stirring it often, and thus proceed to the seventh time, until the matter takes up a very high red Tincture; then being well deprived of all aqueous moisture, put it in a great Matrass, and pour upon excellent distilled Vinegar four inches high, put it to digest in sand, and stir it often; this digestion continue until the Vinegar be well tinged with a red colour, then remove it and pour other in the place, and thus continue until the Vinegar drawes no more Tincture. Filtrate afterwards all the Extractions, and divide them into two equal parts, one of which must be put in ashes in a Cucurbite, and all the *menstruum* thereof drawn off by distillation

lation by a graduate heat to a dry bottom; them make the Lotion and edulcoration of the matter with distilled Rain-water until the water comes off tasteless from it; after this dry it gently between two papers in a moderate and equal heat; and thus shall you have the burning and volatile sulphur of Vitriol, mixt with that of *Mars*, easie to take flame, and even to be consumed wholly away if it be set on fire, yielding a purple flame as Cinnabar doth which hath store of sulphur in it self; keep it for use for Asthmatick persons instead of flower of Brimstone, being much more efficacious and full of vertue; it is given from iv. gr. to ℈ß. in Lozenges with Benjuin flowers, or in Bolus, with Conserve of flowers of Coltsfoot.

The other half of the Liquor kept also as above, must be put filtrated in *B. M.* in a Cucurbite. Then draw off one half or the two third parts of the Menstruums, and precipitate the remainder with oyle of Tartar made *per deliquium* poured drop after drop, until no precipitation will longer ensue; let the fixed sulphur settle in the bottom of the Cucurbite some space of time; then separate the liquor from it, wash and edulcorate the remainder, and dry it according to Art; put this sulphur in a Matrasse or Philosophical Egg, and concoct and ripen it in an equal and fermentative heat the space of a Philosophical month, and it will become of a fair red and high in colour. It is a true Preserver and Restorer of health, being given four times in the moneth as a Preservative, and three times in the week for a Curative, from j. grain to viij. in Confection of Hyacinth fasting, drinking upon it a small glasse of some good Wine, or Cordial and stomachal Drink; for this sulphur drives the irradiation of its vertue through the whole body, and expels from it all impurities, either sensibly by Sweat or Urine, or insensibly by gentle and amicable transpiration. It may even be raised higher, but we keep that processe for the end, when we come to speak of the Extraction of Vitriol.

The

The Sublimation of Vitriol.

WEE have just immediately before taught how the sulphur of Vitriol or its Metallick earth was to be separated by precipitation, and the sublimation teaches how the Flowers of it are to be severed from it, which are nothing else but the substance of Copper or Iron, which is found in all the kinds of Vitriol. Our purpose of giving this Preparation, is only to demonstrate to the Artist the truth of the composition of things. Take then equal parts of metallick earth or oker of Vitriol and Armoniack salt, and beat them to powder each by themselves; then mix them exactly together, and sublime in sand in a Cucurbite somewhat low, covered with a still-Head; give it first a slow fire, and encrease it by degrees, until you perceive that no vapour more ascends; then remove the fire, and let the Vessels cool, and take from the Limbeck-head and sides of the Cucurbite the sublimated matter, and having put it in a Matrass, pour upon it common water; then place the Vessel in *B. M.* and digest it in a moderate heat the space of 24 houres, and the water will dissolve the salt, and the substance of the metallick Martial and Venerean Flowers falls to the bottom in subtile powder, which must be separated from the liquor loted and edulcorated, then dryed. It is a very good astringent and desiccative Remedy for all kinds of Ulcers, and chiefly for any pain in the eye. It breeds and repaires flesh, mundifies and ciccatrizes better then any other Remedy.

The Salification of Vitriol.

WEE have deferred hitherto to speak of the *Caput mortuum* of Vitriol remaining after distillation, saying only above, that it was to be exposed to the open ayr and influence of Heaven in a covered place, exposed to the free passage of the winds: but we will now teach here how to extract the salt thereof, after

after it has been penetrated by the ayr during the space of six weeks or more. Take it then after that time and put it in a Cucurbite, or which is yet better, in an earthen Pan, and pour upon it distilled Rain-water, or new and fresh River water, and stir the matter as you pour the water in; otherwise it would grow hard in the bottom; digest all the matter in sand and stir it often, that the salt may the better be extracted; then filtrate the liquor, and slowly evaporate till it contracts a skin, and let it shute into Christals, and go on thus evaporating and chrystallizing until you can get no more salt; this salt dry gently between two papers, and keep for its uses. After this, take care to edulcorate well the red browniſh earth which remaines after the salt is extracted, and to dry and keep it for its use, which is both inward and outward. Internally it is a very good Remedy against the bloody Flux and Dysentery; it is also very good to dry running of the Reines, and stop the fluxion of Gonorrhæas, the Whites and Reds in Women, and Hemorrhagy, and above all against spitting of blood; externally applyed it is a very good Emplastical and Balsamical Remedy, which mundifies and cicatrizes gently and without pain, all Wounds and Ulcers: wherefore it is used in Ointments, Cerecloths, Liniments and Plaisters.

The true Vitriolick salt which we extracted from this Earth must be white inclining upon the pale red of Roses, and chrystalliz'd as the salt of *Saturn* in small streaks, long and thin; the taste must rather incline towards mite then acerbity or harshnesse, for it must not keep the *Idea* or Character of of Vitriol, nor take the cubical or Lozangical figure; otherwise it would not be the true salt of Vitriol; this salt being so qualified as we have described, is full of many excellent vertues, which makes it to be a fit remedy for Epilepsy, and for such as are troubled with frequent & great headaches, proceeding from the corruption and superfluity of matters stuffing the stomach. It is given also against Pleurisy, malignant & pestilential Feavers, and swoonings, and Deliquiums proceeding from some repletion of the ventricle, as also against obstructions of the Liver, Spleen & Reins. It may also be drawn into the nostrils to provoke sneezing, and unburthen the brain from such serous & excrementitious matters, which do oppress and cause the distention of its membranes: for it is an excellent and specifical Sternutatory. The Dosis must be from vj. *gr.* to ℈ ij. and ʒ j. in broth, beer, or some appropriated Decoction.

The

The extraction of Vitriol.

BY the extraction of Vitriol we do here understand nothing else then the operation which is made to draw the Tincture of it, which can proceed of nothing else but the sulphur thereof; wherefore we will teach two several extractions of this Sulphur: the first of the volatile sulphur, the second of the fixed, that as the processes are various, so the spirit of the Son of Art may be the better enlightened to penetrate further into the search and operation which will be requisite and necessary to obtain to the possession of the greatest Arcana's which are concealed in natural bodies.

The Tincture or essence of the Sulphur of Vitriol.

BEfore we come to the extraction of the Tincture, the body of the sulphur must have been open and deprived of all its materiality and courseness; that it may communicate its soul to the Menstruums which is used for this purpose; Take ℔ j. of the sweet sulphur of Vitriol very dry, and mix it with ℔ ß. of salt of Tartar very white, very pure, and very dry; this mixture being put in a Retort, place it in a close Reverberatory, upon the cover of an earthen pot turned upside down; having the thickness of one inch of sand upon it, and fit to it a well luted Recipient; then give it a gradual fire, and go on still encreasing the fire, until the red oyle begins to come forth by drops; then keep the fire in the same tenor and degree, and continue it until by that degree of heat nothing will come forth more, which is a sign the last and extreme degree of heat must be used, which is called *the fire of suppression*, being a violent fire kindled both upwards and downwards, which must be continued the space of four houres; that being over, remove the fire and let the Vessels cool. The liquor or red oyle must be poured into a small Cucurbite, pouring upon it drop by drop very good distilled Vinegar, until the internal sulphur of the Vitriol

Vitriol which was ascended into liquor, be precipitated to a red Violet purple powder, which must afterwards be separated from the liquor and washed to edulcorate, and afterwards dryed very gently. This precious powder put in a blind Matrass, and pour upon it true alkohol of tartarized Wine three fingers high; then stop the Vessel well, and lute it with a bladder thrice doubled, made wet in whites of Egges beaten in water. This Vessel place in a vaporous Balneo in shred straw the space of three weeks, or until the Artist doth perceive that the essence of this sulphur hath forsaken its matter, and swims above the spirit of Wine in the form of a Wine distilled from *Cinnament*, which separate with the Funnel, after the Vessels are grown cold, and keep it choicely and carefully in a well stopped Viol. All that have treated of this Essence of sulphur of Vitriol, do attribute unto it admirable vertues, and equal it to the Tincture of Antimony; it is given from j. drop to vj. in Balm-water, made with the Plant, digested and fermented with its own juyce, to drive away insensibly and yet naturally all what can be hurtful to the body, and may be the occasional cause of the irritations of the *Archeus*; it provokes appetite and Venery, strengthens the Matrix, and allayes all irregular motions of it, rectifies and encreases the seed, and makes it prolifick & fruitful in either sex; it doth wonders in Dropsies if administred in Parsly water; hinders all Meteorisms and violent, rising vapours of the Spleen, given in water of Sassafras: briefly it may be said to be *Panacea* of Vitriol; you must observe that the use of it is to be continued according to the greatnesse and stubbornnesse of the Diseases; but to preserve health it will suffice to take of it two or three times in a moneth.

The Tincture of fixed Sulphur of Vitriol.

WEE said above, that we did refer our selves to speak in this place of the extraction of fixed sulphur of Vitriol, the preparation whereof we have already taught, and it is performed in this manner. ℞ ℥ iv. of this fixed sulphur of Vitriol, concocted and matured in it self, and put in a Pellican. ℞ also ℥ vj. of tartarized spirit of Vitriol, and as much pure alkohol of Wine,

unite them together by distillation in *B. M.* then pour them upon the sulphur into the Pellican ; lute exactly the joints thereof, and put it to digest and circulate in a vaporous Balneo, until you see the liquor grown blood red ; then remove the fire, and decant what you finde to be pure and clear into a small Cucurbite, to draw off the half of a third part of the Menstruum, and keep the rest as a Remedy yet more universal in operation and vertue, and more precious then the foregoing. We will nevertheless attribute unto it no other faculty ; for whosoever can prepare it, shall never fail to know also the way to use it. The Dosis may be from j. drop to iv. in Broth or Wine.

Section VI.

Of Sulphureous Minerals, and Sulphurs.

TO put a period and Conclusion to this Treatise, it remaines only we should speak of inflammable and sulphureous Minerals; and as we have said, That a Chymical Philosopher could not apprehend the generation of Metals or Minerals, but by comparing them with other natural productions, more palpable and more obvious to his senses; so may we lawfully speak the same thing concerning the generation of sulphureous substances, which can only be conceived by comparing the same with other fat and oily substances which Nature doth digest, concoct, and bring to perfection in the Family of Vegetables and Animals : for as the Oyles, Rozins and Gums of Vegetables ; the Fat, Tallow, Grease and unctuous excrements of Animals are produced in them, by the excesse and superfluity of the fat and sulphureous part of their food ; so likewise sulphureous Minerals do proceed from the introduction of the Character of the Sulphur and light in the recesse and most abstruse parts of the Matrixes of Minerals, where this Fire works perpetually towards the generation, encrease, digestion, concoction and

and perfection of several sulphureous Mixts according to their species and kind; such as are *Arsenick*, *Brimstone*, *Bitumery*, *Yellow Amber*, *Ambergreise*, *Sperma ceti*, *Asphaltum*, *Naphta*, *Petroly*, *Seacoal and Jet*. We will give some examples of the manner of working upon the chief sorts, to put an end to what we have begun, with the same punctuality and clearnesse, which we have endeavoured to use hitherto.

Of Arsenick, and its Chymical Preparation.

ARsenick is a soot or mineral juyce coagulated, which is fat and inflammable, it is called also *Orpiment*; there are three kinds of it; the first is white, which is that properly we most use, and is called *Arsenick*; the second is yellow, called *Realger* or *Orpiment*, and the third red, called by the Greeks *Sandarick*. The white and chrystalline Arsenick is not natural, but prepared by Art, with equal parts of common salt and fragments of Orpiment mixed and bruised together, and sublimated afterwards between two pots. The most dangerous and pernicious of all is the red kind; the yellow much lesse, being not so hot, nor so much exalted as the red; and the white is the least hurtful, because part of his heat, corrosiveneese and venom, hath been corrected by the salt with which it was sublimated. All three are deadly poyson and most dangerous; for they possesse so evil and so strange an acrimony, and so great an enemy to the vital Balsom, that they immediately raise fearful and stupendious accidents if inwardly taken, or outwardly applyed; for they bring immediately Convulsions, cause perclusions of hands and feet, cold sweats, palpirations of the heart, Syncops and swoonings, vomiting, erosions, gripings, noise and great rumbling in the belly, and intolerable thirst and prodigious heat. All this malignity nevertheless may be taken away and corrected by Chymical preparation, and the venom of it made a Remedy capable of much good both outwardly and inwardly: but notwithstanding this unprepared Arsenick is sometimes used; for in time of Plague it is a Preservative worn in a bag hung to the neck in form or manner of an *Amulet* or *Periapt*. It is also used in Depilatories, and sometimes with o-

ther ingredients for opening of Cauteries or Issues. Now all the end of preparing Arsenick, must only tend to remove its acrimony and dulcifie it, to separate the impression and *idea* of the venom from it, which cannot be performed without the help of Chymical preparation, which is threefold; Sublimation, Fixation, Resolution or Liquation.

The sublimation of Arsenick; To prepare the dulcified Arsenick.

TAke as much of chrystalline Arsenick very pure and clean as you think fit; beat it to a powder, and sublimate by itself in a Matrass in sand with a graduate fire. The Sublimation being ended, let the Vessel grow cold, then break it, and throw away the most volatile and sublimated part, resembling to the finest flying Meal in grinding; but that part which is more compacted beat in a Marble Mortar, and put it in a Crucible covered with another luted unto it, which place in a circular fire, and digest and bake gently the space of three or four houres; this done, mix your Arsenick so prepared, with scales of Brass such as do fall from the Anvil of Brasiers, and sublimate this matter once more; for this Copper half calcinated drawes to its self the gross venom and malignity of the Arsenick, as digestion and baking did deprive it from its volatility and blackness. This done, sublimate it three times consecutively with common salt melted, and this salt will perfect the concoction and sweetening of it, so as it may be afterwards used inwardly and outwardly, after it hath been well washed with distilled Rain-water, until the water comes away insipid from it. But before it is put to use, you must try whether or no it be duly corrected, which will easily be known by throwing the same upon melted Copper: for if it doth blanch it, and that the white Tincture be fair and can abide a second melting, it is an evident sign that it is deprived of its malignity: but if it spoiles and blackens the Metal, it argues the contrary. It may also in part be discerned by smell; for crude and ill prepared Arsenick hath an unpleasant and ill-savoured taste, which immediately strikes the brain, and disaffects the heart, whereas that which is corrected

ed gives no offence at all. Many do highly extol the vertues of this dulcified Arsenick : but my advice to those that are skilful in Remedies, is, to use rather such as are taken from *Mercury* and *Antimony*, then prepared from this Mineral, because it leaves the mind still more at rest and satisfied : but it may usefully be applyed outwardly in the cure of the most dangerous and stubborn Ulcers, and chiefly when it is converted into Liquor by resolving it in a cold Cellar. If any will nevertheless make use of it in desperate diseases, and where the danger bids to play quit or double, he may make use of this Sublimate of dulcified Arsenick in infusion from iij. to viij. graines.

To make the diaphoretical Rubies of Arsenick.

Sublimate three times your Arsenick without addition, and this sublimation must be performed in a Cucurbite, that the volatile sulphur may the better separate it self in the upper part of the Alembick : for it rises in the form of a very subtile powder, which at every sublimation must be thrown away, because it is the most pernicious and venomous part of the Arsenick. That which you finde compacted and in Chrystals, take and grind with its equal weight of Flowers of Brimstone, and sublimate in sand, and you shall have a chrystalline Arsenick red as Ruby. These Rubie are given against diseases of the breast, and chiefly when the Lungs are stuft with crass, tartarous and mucilagineous matters. It is also good to provoke sweat in malignant and venomous diseases. The Dosis may be from iij. to viij. graines in pectoral Conserves, or in extract of Juniper berries. This Remedy is also very excellent for the cure of all obstinate, corrosive, fistulous, cancerous and dangerous Ulcers : for it kills all the venom by which they are generated, if you have care to purge the Patient at the same time with some Mercurial Remedy, and administer unto him every day Antimonial Tincture in vulnerary Potions.

The same kind of Ruby may be prepared out of *Orpiment* : for as we have already said above, Arsenick is nothing else but *Orpiment* sublimated with salt, and in some manner already corrected. It may be exhibited in the same Dosis, and against the same diseases.

The

The fixation of Arsenick.

TAke one part of pure chrystalline Arsenick, or what is yet better, Arsenick already sublimated, and two pints of purified Salt-peter, reduce them each severally to powder, and mix exactly; then put in a great Crucible, which cover with another having a hole in the bottom, that the malignant and noxious vaprous may easily come forth; lute both Crucibles together, and let the Lute dry very well; put them in a circular fire, encreasing it by degrees the space of three houres, to exhale and evaporate the most dangerous part; then encrease again the fire, and let it so continue the space of eight or ten houres, and let the Crucible be well encompassed with coales towards the end. The Vessels being cooled, take off the matter, and wash it with Rain-water, and when the water comes out tasteless, dry the powder which you finde in the bottom, which will be very fix and white. They that will yet be more confident of the fixative, must reiterate three times their Operation with new Niter, washing well the matter at every time. This Powder is only used in the preparation of the fixed Sudorifick Arsenick, and the oyle of it *per deliquium* in a Cellar.

To prepare the fixed sudorifick Arsenick.

℞ As much as you will of the finest powder of Arsenick, imbibe it with oyle of Tartar *per deliquium* to the consistence of a liquid pap in sand or ashes, stirring it with a slice of Glass or Spatula; this imbibition and exsiccation reiterate three times. Bray this mixture afterwards in a Marble Mortar with common *aqua vita*, and the powder after dissolution of the salt of Tartar will remain in the bottom; this powder must be edulcorated and dryed, which may be given in Bolus, from grain ℈. to ʒ. in Treacle or extract of Elder berries to provoke sweat: but the *mineral Bezoar* is better and safer then this Remedy, unless outwardly applyed.

The

The liquation or resolution of Arsenick.

THis Liquation is nothing else but the resolution of the fix powder of Arsenick into liquor in the Cellar, or else the resolution of butter of Arsenick by *deliquium*; this Butter is prepared in the same manner as that of *Antimony*, wherefore we do not insert the manner here. Both these Liquors are used against malignant Ulcers of what nature and condition soever they be, but must not be applyed alone; but mixt in Plantain juyce water, or Arsmart or Culrage, until these waters may be endured on the tip of the Tongue; then warm them, and so you may wash venereous, cancerous, hollow, fistulous Ulcers; as also the bitings of mad Dogs. They must also be applyed upon the said Ulcers or others with Feathers, or Fillets dipt in it.

Of Brimstone and its Chymical Preparation.

IT is not without reason that the Greeks gave to Brimstone the name of θεῖον, that is to say Divine; for we must confesse that all Sulphurs have in themselves something heavenly and great, being nothing but the productions of salt, spirit and light: and as light doth easily penetrate and reach everywhere, so do likewise Sulphurs by their odour and colour extend and communicate themselves far and broad, and that with an almost unconceivable efficacy. But this is not the place to speak of the internal sulphurs of things, which do constitute to the best part of their essence and being: for we will now treat only of that Rozin and earthly fat of the earth, which is mixed with some portion of an acid and vitriolick substance, commonly called *Brimstone* in Shops and Chymical Laboratories. There is two kinds of it, the one Natural, the other Artificial: the natural is that which is called *Sulphur vivum*, or which hath not passed through fire, and the Artificial is that which is extracted from those peble stones or fire-stones, whereof we have spoken in the operations of

of Vitriol; they that will know how it is made, must consult the most learned *Georgius Agricola*, which hath wrote about Metallicks, and Minerals.

The Artist must for his Operation chuse the purest Brimstone, as that which is in small cakes of a gray colour inclining to green, easie to inflame, burning without intermission, and sending forth a more blewish then whitish flame; and if this Brimstone is not to be met with, let him have recourse to yellow Brimstone, which is in bigger cakes, and may be substituted in the place of the other: he must nevertheless try whether it easily inflames and burns constantly; for if it doth not so, it is too much indigested, and by its easie extinction doth shew its self to participate yet too much of Vitriolick nature. The vertues and qualities of Brimstone are noble, and efficacious before its preparation: for it is generally devoted to the Brest, and the cure of all diseases which do molest and afflict the same; it opens, cuts, resists putrefaction and venom, as also the biting of venomous creatures; it provokes sweating, softens and allayes the irritations and irregular motions of the *Archeus*; wherefore it is used against Phthisick, Cough, Asthma, Pestilence, generally against all malignant, putrid and pestilential Feavers. If it be outwardly applyed, it resolves mightily all hardnesse of tumors, doth cure corroding Tetters or Ringwormes, Scab, Itch, and hinders itching in the skin. But if crude Sulphur hath so noble and so great vertues and proprieties, what may not be expected from this Mineral, when according to the precepts and directions of Chymistry, which only aimes at the correction and melioration of substances upon which Artists do work, it shall be either opened or fixed, dissolved or coagulated, precipitated or sublimated: the sons of Art ought then to spend their time and care in working upon this Mixt, as upon one of the chief Instruments, put in their hands by the power of the Creator, to draw from it variety of noble and good Remedies, with which he may charitably supply the wants and necessity of many poor Patients.

The general preparations which are made upon Brimstone, are, *sublimation, precipitation, distillation, infusion and extraction.* We will according to our accustomed method give some examples of

of all these operations, that the Artist may well apprehend the manner of working, and learn also the Vertues and Dosis of Remedies proceeding from it.

The sublimation; To make the Flowers of Brimstone.

AS we have said heretofore that Tartar was purified by dissolution, percolation or straining, and chrystallization, and Antimony by its reduction into Regulus, so do we say here, that the Brimstone is only purified from its feces and earthly superfluitie, by sublimation into Flowers, which are absolutely nothing else but a well purified Brimstone; to prepare well these Flowers, you must chuse of the best Brimstone and bray it grosly, then put a Cucurbite of earth in sand, the bottom near the plate of Iron on which it stands, having but the thickness of a finger of sand between; put ℔ ß. of Brimstone at every time, and cover it with a Head which must not be luted; have another also warm in readiness to substitute into the place of this which lyeth on the Cucurbite, when it shall be filled with Flowers; after you have given it a gentle and gradual fire of sublimation: there must also be a small Matrass for a Recipient, to receive at first a little portion of sharp fine spirit, which rises before the Flowers and condenseth into liquor in the Limbeck. Thus proceed taking away the Flowers, and substituting a Head to the former taken away, until you perceive the greatest part of the sulphur to have ascended into Flowers; after which you may put again another ℔ ß. and thus go on till you have enough for your purpose. But you must be nimble in exchanging the Heads or Limbecks, lest that the ayre should set the Brimstone on fire, and if that should happen, let it be extinguished with ashes or burnt Allom. You must also regulate the fire conveniently until the sublimation begins to work, and entertain it in the same state; otherwise too much heat would melt the Flowers, before they were sufficiently carried up into the Limbecks Head.

Now there are some that do add Colchotar with the Brimstone & melted salt, to be able more boldly to give it fire, thinking also by this way to draw more pure and subtile Flowers. Others do mix also Bolus or *terra sigillata*, which we do much better approve of then

the process of those who think it enough to mix only Brick flower or small Brick dust, because the oriental Bolusses or sigilled earths have in themselves a solar sulphur, which joyning with the flowers of Brimstone, renders them more efficacious. But we altogether disapprove of those who with the Brimstone do mix Gums and Aloes, because the sublimation cannot be performed until the Gums also burn, what care or precaution soever is had in it: wherefore it is much better if the Gums beaten to small powder, be mixt with the flowers of Brimstone already sublimated; or what will be much better, the vertue of both be jointly extracted, as we shall teach hereafter. The flowers of Brimstone may be 3 or 4 times sublimated, for a greater depuration, concoction and maturation by the reiterated action of fire, which thus perfects by degrees what Nature had not yet accomplished, by reason of the heterogeneous and terrestrial mixture of matters.

The flowers of Brimstone resists putrefaction, provokes sweating, and dry humours. They are given with very great successe against pestilence and all malignant Feavers, whether us'd as a curative or preservative Remedy. They are also of singular use against Asthma's and short breath, diseases of the Lungs, inveterate Coughs, Suffocations of the breast, Catarrh's and Fluxions. There is not above ℈ ß. given for preservative, but for cures of diseases it is administred from ℈ j. to ʒ j. They are for the most part mixed in Lozenges or Opiat's, and often also given in new layd Eggs: but if you desire to quicken more their working, give them with Treacle, Conserve of Roots of Enula, Campane, or Extract of Juniper berries. There are some yet that sublimare the Flowers of Brimstone with red Coral, and extract the Tincture thereof with oyle of Aniseed, which they give to Consumptive persons as a true specifick Remedy for their cure: but all these contrivances depending from the knowledge and experience of Physitians, we shall not instance upon any here to examplifie; for it is enough for us to have taught the best and surest way of performing the plain sublimation; for whosoever can make the simple Flowers, shall be in much lesse danger of erring in the preparation of those that are compounded.

The Precipitation. To prepare the Milk, Cremor, Butter, or Magistery of Brimstone.

WEE have ever recommended the choyce and purity of Materials, which makes us again to enjoyn hereunto the Sons of Art, not to spare the fair salt of Tartar in the dissolution of Brimstone, although several Authors content themselves with ashes of Wine lees or Glasiers ashes, which are the salt of the herb *Kali*, to make this preparation: but besides, that they cannot well filtrate their Tincture, by reason of the viscosity and clammincsse of the ashes, the Remedy is not so good, so fair, nor endowed with the requisite vertue, because these salts have not the penetrating and fiery vigour which is required for the dissolution of Brimstone, and the concoction and maturation of that Mineral; and this part must the Artist heed, because the good or evil of his Operation depends from it; therefore you must proceed in it as followeth.

℞ Flowers of Brimstone twice sublimated, at least some part thereof, and three parts of very pure and white salt of Tartar; put them in a gray earthen pot, or a glass Cucurbite, and pour upon xij. or xv. p. of distilled Rain-water, cause them to boyl together in sand the space of five or six houres, or until all the substance of the Brimstone be dissolved, and the liquor clean, and tinged with a very high red; and as the ebullition causes the Menstruum to lessen in quantity, add to it some other warm, stirring continually the matter, to hasten the sooner your dissolution. Moreover, the mixture of the salt of Tartar and flowers of Sulphur must have been made before in a Marble Mortar warm and dry. The dissolution being duly made, warm a great earthen gray pan, putting in it the clear part of the dissolution, without any previous filtration, which cannot be soon enough performed, the Brimstone returning into a body, as soon as the Menstruum begins to cool; pour upon the Tincture very good distilled Vinegar sprinkling it every where, until the whole turns into a liquor as white as Milk, which when you see, fill up

the remainder of the pan with clear and pure Spring-water, to begin the edulcoration and setling of it; then cover it, and leave the space of 24 houres in a secure place, and separate after that the clear liquor by inclination, then pour new clear water upon the milky substance setled in the bottom, and thus continue the lotion thereof until both the ill smell, and lixivial taste of the salt of Tartar be gone away. But note, that the first water must not be thrown away, but contrariwise evaporated, and so you shall finde again your salt of Tartar, which reverberate in a Crucible to rednesse, then dissolve and filtrate, and it will be as good and as pure as before, to serve in the same operation or any other whatsoever; You must wash the Magistery of Sulphur for the last time in equal parts of Cinnamon, Rose-water, and then dry it slowly and keep it for use.

But because this Magistery cannot be made in small quantity, and that the Artists are not alwayes provided with salt of Tartar and distilled Vinegar, we will teach them a good and sure way, to prepare with small expence, and at all times a milk of Sulphur or Brimstone, which in vertue shall not be inferiour to the former; the Dosis and faculties whereof we will declare after we have spoken of the preparation of the other.

The true and infallible manner of preparing the Milk of Sulphur.

℞ Of good quick lime that hath not been exposed to the open ayre ij. p. and j. p. of good green Brimstone in small Cakes j. p. mix them exactly together in an Iron Mortar by a long trituration, and afterwards let them boyl in a good quantity of Rain-water in a great Iron Cauldron, stirring continually with an Iron Slice, until three parts of the water be boyled away, and the remaining be as red as blood by the dissolution of the brimstone, run it then warm through the straining bag, and let the strained liquor cool, then with new made Urine precipitate before it grows cold; this Magistery suffer to settle, and separate the upper part of the liquor, and wash it twelve or fifteen times with warm Spring-water, and when it hath no more ill taste or

odour

odour left, wash it as the foregoing Rose and Cinnamon water, and let it dry gently, to keep for use. The Remedy is called *the Balsom of the Lungs*, which by the eradiation of its vertue, consumes and dryes up all malignant, serous and watery superfluities. Wherefore it is usefully exhibited to those that are tormented with melting and suffocating Rheumes and Catarrh's, to Asthmaticks and Phthisical Persons, and such as are troubled with old and inveterate Coughs, or subject to Golick and Ventosities, which it doth hinder and dissipate. It is given also to those which are troubled with malignant humours and serosities in the joynts; it facilitates expectoration, and wonderfully strengthens the brest. The Dosis may be as much as will turn Cinnamon or Balm water to a milk white; it is given every day to the Patient morning and evening, one spoonful at once. Though this Remedy be highly celebrated amongst Authors, yet our advice is to trust rather to the Tinctures extracted from it, then to this body, yet too coarse and material to hope from it all the good and commendable effects which are attributed unto it; we do nevertheless leave it to every ones liberty to make use thereof, until the truth of our Assertion be better known by study and practice, which are the two Touchstones by which things are to be examined and known.

The Distillation of Sulphur.

THe Sons of Art have sought long how to finde a way of Distilling from sulphur of Brimstone a good acid Spirit, which they improperly call *the oyle of Sulphur*, and to draw quantity from it, which hath caused a hundred manners of contrivances and processes upon this Subject. They also have endeavoured to turn Brimstone into an unctuous Oyle, which might be fit both for inward and outward Diseases, wherein every body hath also brought in his mite of experience and industry to attain that end: but as we have found that Brimstone hath been Vitriol before it could attain the Character of Sulphur; our wonder hath been the greater, that they should have laboured so much to get out that acid Spirit, since they do confesse

feſſe and ſay themſelves, that the ſpirit of Vitriol is like in vertue and operation to that of Brimſtone; and it will be eaſier to draw lib. x. from one, then lib. ſ. from the other. We muſt confeſſe notwithſtanding, that there ſhall be ſomething found more quick and ſubtile in the acid of brimſtone, then in that of Vitriol, becauſe the ſubſtance from which it is extracted hath been more exalted, more concocted and ripened then Vitriol, which is much inferiour in theſe reſpects, and conſequently more undigeſted. Wherefore we will declare here two wayes, which have ever been very ſucceſſeful unto us to draw the acid of Sulphur or Brimſtone. After which we will alſo give the Method of turning the body of Brimſtone into *Oyle* properly ſo called, which will be more unctuous and inflammable; and is a very conſiderable Remedy, both in Phyſick and Surgery.

The firſt manner of preparing the ſpirit of Brimſtone.

WEE have cauſed a draught to be made of the figure of the Veſſels for both theſe operations, becauſe the mind of the Artiſt is more ſenſibly toucht with this repreſentation of them, and he may thereby much better apprehend how to diſpoſe of things; for objects move more powerfully the apprehenſive faculty, then words can do; wherefore we refer to that Scheme, they that ſhall be inclined to put in practice the following operation.

Take a great gray earthen pan, in the midſt whereof place an Iron Trefoot, capacle of upholding an earthen diſh glazed without and within; fill up this diſh with Brimſtone beaten to coorſe powder, and melt it in a ſlow heat, then ſet it on fire with a brimſtone-Match, or an Iron made red hot in the fire. After which hang up a glaſs Bell, ſuch as thoſe that are us'd to cover Melons; let it be moiſtened with *aqua vitæ* above the earthen diſh ſo as the flame may come into the Bell, but not reach to the top or touch it; take alſo care that there be not more diſtance between the circumference of the pan and that of the Bell, then the breadth of an inch, or one inch and a half, becauſe this ſpace is ſuffi-

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The Furnaces to makey^e Oyle and Vessailes of Sulphur,

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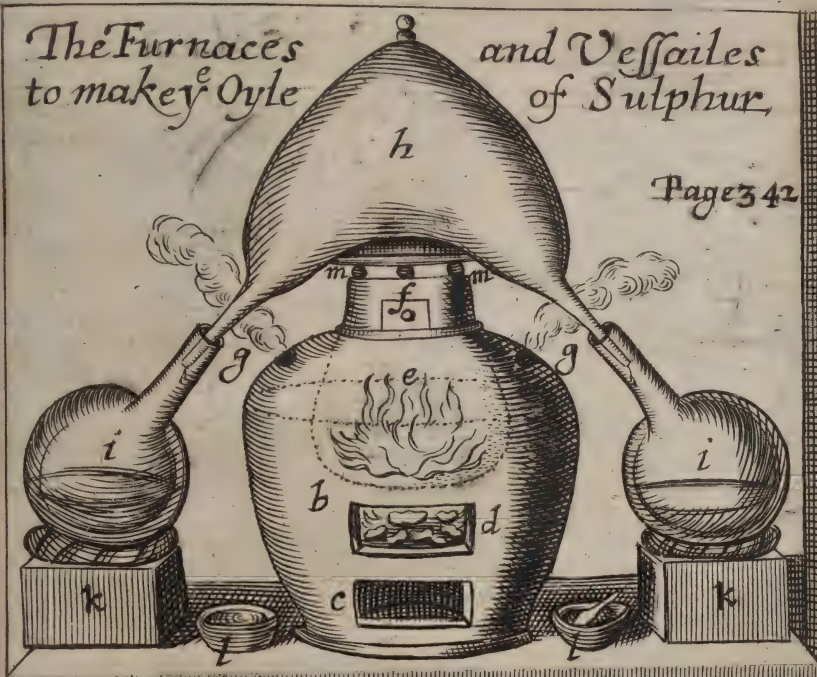
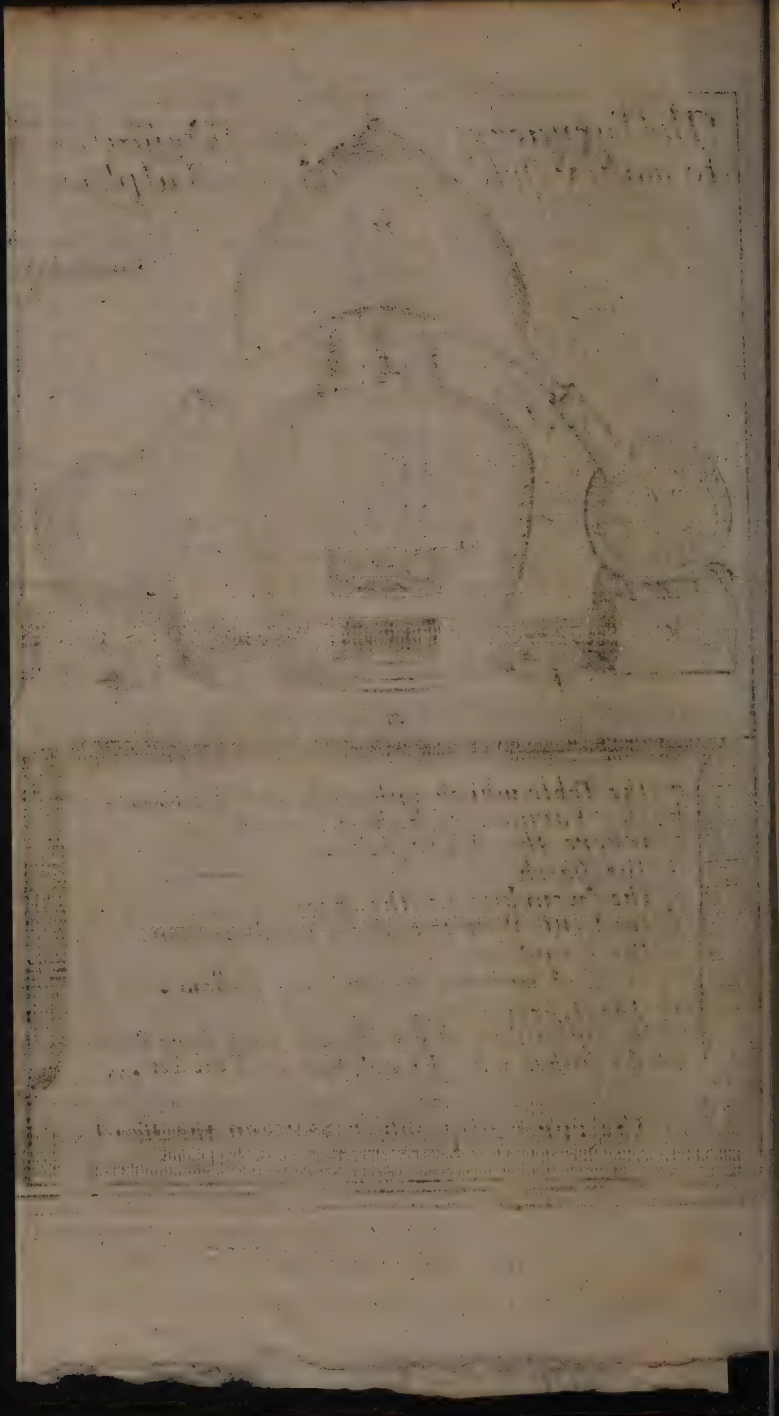


a The Table which vphoulds the Furnace.
b The Furnace of baked Earth.
c Where the Ashes fall.
d The Harth.
e The Cucurbite in the Fire.
f The Little Port to cast in the Sulphur.
g The Registers.
h The Head with two descendants hallow.
i The Receivers.
k The vpholders of y^e Recipients with theyr Rolls.
l The Dishes with the Sulphur in Powder.
m The vpper props which festeyn the Head.

The Bell to make the Spirit of the Eager or Sulphur.

2.^d p.^t

a The great earthen Vessail of Potters clay or other Stiffe clay.
b The Dish that contayns y^e burning Sulphur.
c The Bell.
d The Supporters which vphold y^e Dish.



sufficient to entertain the flame of the Brimstone, and hinder the extinction thereof, which if it should happen, great care must be had to kindle it again, that no interruption may happen in the work: and when all the Brimstone shall be spent, have another dish in readinesse to substitute in the place of the other. So shall you have the true spirit of Sulphur *per campanam* very heavy, acid and of a brown red colour; if the time hath not been too moist, and the Brimstone not too much impregnated with vitriolick Salt. And if the distilled Liquor proves to be only clear and yellow, let it be rectified, and the superfluous phlegm thereof drawn away. The Artist may place as many earthen pans and bells under a Chimney as it can hold, to advance the more his work, for he may as easily use four or five as one; above all times chuse that of the two Æquinoxes, vernal and autumnal, to work this Spirit. That season being moist for the most part and rainy, which is a thing necessary in this operation, otherwise you shall draw very little spirit from lib. j. of Brimstone, because if the ayr be too dry by intervention of either cold or heat, it is not capable of coagulating the acid and vitriolick spirit of the Brimstone, which contrariwise is totally dissipated with the fat and inflammable substance of the Brimstone. We will speak of the vertue and faculties of this Spirit after we have taught the second manner of preparing it.

The second manner of making the spirit of Sulphur and Brimstone.

HAve a small Furnace of baked earth, capable of receiving a strong earthen Cucurbite which may endure well the fire, having a square hole made in the body or belly of it, whereto a piece to close it up, must be exactly fitted; let the Cucurbite also have four small eminencies distant the one from the other, to keep up the border of the Limbeck-head, which is to be applyed upon, that there may be room and ayr to let go and evacuate part of the smoak ascending from the Brimstone when it takes flame, otherwise you should have nothing but acid Flowers and a whitish Liquor; this done, heat softly the Cucurbite at first, then encrease the fire till it become red, and have at hand very good

Brim-

Brimstone well chosen and dry, beaten to grosse powder, and throw about ʒ ij. thereof at once into the Cucurbite through the square hole, and immediately shut it close again, thus continuing until the ascending vapours begin to condensate themselves and thicken in the still-Head, and drop down into the Recipients, which must be applyed to both noses of the still. You must also make choice of a moist and rainy weather to work this Spirit, if you will have it in quantity; the time being seasonable, the Brimstone good, the Artist watchful in keeping up his fire, and throwing in Brimstone as soon as the flame doth cease; you may hope ʒ j. ſ. from each ℔ of Brimstone. The proportion of the Furnace and necessary Vessels for this work, may be better seen by the Artist in the Figure, then we could be able to describe, wherefore we refer him thither. He may also finde out the vertues and proprieties of this acid spirit of Sulphur, by comparing those we have attributed to the spirit of Vitriol; to which we add nevertheless, that this spirit is a specifick Remedy against the Plague, and other diseases occasioned by putrefaction and corruption, as likewise against Asthma; above all things it preserves health if it be taken in the quantity of *gutt.* iij. every morning in white Wine or in Broth, because it redresses the defects of the Ventricle, and sufficiently strengthens it to hinder indigestions, which are the springs, causes, and originals of most diseases in our bodies. This Spirit is also us'd with good successe mixt with Plantain-water, in the falling of the blind Gut, fomenting and bathing gently the part with a Spunge dipt in the Liquor.

How the true Oyle of Brimstone is to be distilled.

THose that are versed in matters of natural Philosophy, know that Minerals are only crude and undigested, because their constitution is such, or because they are prematurely taken off from their Matrix as a green and unripe fruit, pluck't off before his time from the Tree, and it is want of a due digestion only, that they are uncapable to produce all the noble effects which nature hath made them apt to bring forth: but the intention of that

that good and kind mother, ayming still at the best, hath by the mixture of some other matter been frustrated and disappointed, or by being interrupted in her work which she could not bring to perfection by the privation of inward and outward heat which did foment and cherish it, to bring it to the highest degree of its natural predestination: wherefore all the Philosophers that have known and followed Nature closely, have ever endeavoured to let Art begin again where Nature had ended and had been interrupted, to digest and bring to maturation unripe substances, and supply the defects thereof. They have made use of visible fire and of its heat to stir up that invisible one which is hidden in the Center of mixt bodies, and constitute the chief part of their soul, essence, efficacy and vertue: And if this only way could not bring them to their desired scope, they have sought in other Mixts some analogous substance, which could sympathize and answer with a proportional heat to that which they intended to perfect and multiply. This same way we do intend to hold in the maturation of common Brimstone to correct it, and this way to stir up the faculties and wonderful vertues it hides under the shade of its body, which is the rind and cover of the light and internal fire by which it is produced.

To this end let the Artist take as much of well chosen common Brimstone as he doth think fitting; then beat it to powder, and digest in ashes with a moderate heat in a Matrass, without any melting at all the space of forty dayes uninterrupted; this digestion will correct the stench and ill smell of the Brimstone, and will encrease the vertues thereof in a quadruple proportion, which immediately he will perceive by dissolving a small portion of this digested Brimstone in some oyle, and doing the like with other not digested and ripened; for the one will yield an unpleasant smell as it uses to do, and the other will rather recreate and please the smell then offend it. After this first operation a second must be put in practice, which cannot be but by the means of a subtile, æthereal and volatile oyle which may open the body of this Brimstone, and make it capable of being converted it self into a subtile, penetrating and pleasant Oyle. This Oyle must be none else but of Turpentine, drawn after the manner we have taught above. And as we have laid for an infal-

lible and sure Axiom, that the substance which must open and subtilitate, must in many degrees exceed that body that is to be opened and subtilitated; so must the Artist put viij. p. of this Oyle upon j. p. of digested Brimstone made into very subtile powder, and let them digest together in *B. M.* until this Oyle hath almost dissolved all the substance of the Brimstone, and be turned as red as an oriental Ruby; which done, distil the Turpentine Oyle, and draw it off again in the slow heat of ashes, until that which remaines in the Retort becomes as thick as a Syrup; then cohobate that which is extracted and digest it together the space of eight dayes, and reiterate the distillation as before, and so continue seven times together digesting, cohobating and distilling; but the seventh time draw off the Oyle of Turpentine as before to the consistency of a liquid Syrup; then encrease the fire in some small degree, and change the Recipient, and thus proceed in the distillation thereof, and you shall have a true oyle of Brimstone, red, well smelling, and penetrating, which is a very Balsom both inwardly and outwardly, the efficacy and vertue whereof cannot sufficiently be exalted. It is a most excellent Vulnerary, curing internal Ulcers, resisting mainly corruption, and allaying all irritations and fits of the Mother; it is a wonder of Remedy against the Plague, Colick, Catarrh's and Fluxions, Asthma's or short breath and Empyema's, or corrupted Ulcers in the stomach; it abundantly provokes sweating and Urine, and doth work also by insensible transpiration. The Dosis may be from one drop to vj. in some appropriated Syrup, or the yolk of a new laid Egg in the morning fasting. For outward application it is an unparallel'd Remedy, to dissolve and digest Tartarous and scrophulous Tumors, as also to allay griefs, particularly that of the Sciatica: Finally it may be said, that this true Sulphur is none of the least Masterpieces of our Art, provided the Artist be punctual and sedulous, and hath been careful to ripen and digest well the Sulphur, as we have prescribed. He ought then to follow the exhortation of that great and renowned Philosopher and Physitian *Van Helmont*, when he sayes, speaking to Artists that are desirous to learn some profitable and good Operation, *Hortor itaque Tirones, addiscant Sulphura mineralium spoliare vi peregrina & virulenta sub cujus*

custodia

custodia abditur ignis, Arcanum in scopos c nsideratos placidissimè deducens. But as this Operation is long and painful, and that every one shall not have the time or capacity to attain to the perfection of it, we will give yet another way of distilling a Balsamick oyle of Brimstone, only good for outward uses, yet withal endowed with many excellent vertues.

How the fætid oyle of Sulphur or Brimstone is to be prepared.

℞ lib. j. of Brimstone made into fine powder, mix it with lib. j. ſ. of oyle of Linseed in an earthen glazed pan; put this pan on a slow fire at first, and stir continually the matter, encreasing the fire by degrees, until all be well boyled and united into a lump, which will have some likeneſſe unto coagulated Oxe blood; let the matter cool to mix it afterwards with lib. ij. of calcined Vitriol; and put it in a capacious and well luted Retort, to make the distillation thereof in a close Reverberatory, according to the several degrees of fire; after distillation separate the oyle from the watery Liquor; then rectifie the oyle in sand with twice its weight of salt of Tartar, and this will subtiliate it and correct much the stench and ill odour thereof. It is an admirable secret in time of Plague to bring the boyles or sores to maturation, and cure the Ulcers after the skars are fallen from the sore: it advances also their maturation and falling, and hinders the venom from spreading too far.

The Infusion and Extraction. How the Balsoms and Tinctures of Sulphure are to be made.

WEE joyn together the operation of Infusion and Extraction, because the last doth necessarily follow the first. Both do supply us with Balsoms and Tinctures, which are Remedies highly to be esteemed by reason of their efficacy and vertue. For as Brimstone is of it self uncorruptible, and preserves dead bodies from putefaction, with how much more reason shall he hinder

the corruption and decay of living bodies, and restore the defects of the radical Balsom of our life, when once altered. Wherefore above all things we recommend unto the Artist to delight himself in the works of Balsoms and Tinctures of Brimstone, which will supply him with Medicaments lesse subject to fail in their operations then others. For we must confesse, that whatsoever the most excellent Remedies have of vertue, faculty, efficacy and power, only proceeds from that Ray of Light and internal Sulphur they have in themselves, whether extracted from animal, vegetable or minerals; and it is for this only reason also that we have so much recommended the conservation of the volatile sulphureous salts or substances, because it is the last rind and covering of Spirit and Light, from whence proceed all the vertues and actions of natural bodies.

We will deliver three several manners of Balsoms of Brimstone, and as many wayes to extract the Tincture of it, that the Artist may the better be informed of the method of working, and better apprehend the nature of things and their intrinsecal vertue.

The plain Balsom of Sulphur or Brimstone.

PUt in a long neck Matrass Flowers of Brimstone twice sublimated with Vitriol ℥ iv. and pour upon ℥ viij. of æthereal oyle of Turpentine distilled in the manner we have already taught; place this Matrass in sand, and give it at first a moderate fire, which encrease by degrees until the Flowers of Brimstone be dissolved, and the oyle of Turpentine be tinged with a very red colour; then let it cool, and filtrate the same through a Cotton, and put in a close Glass Viol to keep for use. Some make use of the distilled oyle of Aniseed, Fennel, or Juniper berries to extract this Balsom whereof we leave the choyce to the freedome and liberty of the Artist, since the oyle cannot chuse but be very good to encrease the vertues of this Balsom, which are excellent: for it is singular against Phthisick, and to correct defects of corrupted breath, and to cure Ulcers in the Lungs; but above all it is commendable against Pestilence, and all other contagi-

ous

ous diseases, whether administred as a Preservative, or given to Patients and already sick persons as a curative Remedy. The Dosis from j. drop to xx. in Lagwort or Butter-bur-water, or distillation of Enula Campana Roots.

The Compounded Balsom of Brimstone.

This compounded Balsom is called *antipestilential Balsom*, or *Balsom of Life*, by reason of the admirable vertues that are thereof. It is made with ℥ viij. of distilled oyle of Juniper berries, ℥ iv. of oyl of Amber, ℥ ij. of oyle of Rhew, ℥ j. of oyle of Camphire, all which put in a long neck Matrass, and add ℥ iij. of Milk or Magistery of Brimstone; ℥ ij. of Myrrh, ℥ j. of Aloes Succotrin, and ℥ ſ. of well chosen Saffron; digest all these in ashes together in a slow heat the space of seven natural dayes, or rather until all these substances be converted into a very red Balsom, which must be filtrated through a Cotton, and kept as a choyce and precious treasure against the Plague, and all pestilent and dangerous Diseases. The Dosis may be from j. drop to xij. in appropriated Syrups or some Spirits.

The Vulnerary Balsom of Brimstone.

℞ ℥ iv. of good and well chosen Brimstone; beat it to fine powder, and mix it with as much salt of Tartar very dry; this mixture put in a glazed earthen dish, and place it upon a slow and moderate fire, stirring it continually with a wooden slice until all be reduced to a Masse, called *the liver of Brimstone*; having proceeded thus far, remove the fire and let the matter cool; then beat it to powder and put in a Matrass, adding to it ℥ j. of Aloes Succotr. ℥ ſ. of fine Myrrh, and ℥ ij. of Saffron, all beaten to fine powder; pour upon it one p. of yellow oyle of Turpentine, and two p. of its red oyle, which some call *the Balsom thereof*, and that until the oyles swim above the matters four fingers high; place the Matrass in ashes, and there keep it in digestion, encreasing the fire by degrees until the matter begin to simper; then

then look whether the Extract of the substances be made, and they dissolved, which being so, filtrate the Balsm through a Cotton, to keep so use, and in case it be not ready, keep it on the fire till it be. We dare confidently warrant that this Remedy shall never fail those that shall know how to use it skilfully, in the cure of Wounds, Ulcers and Contusions; for it is one of the most excellent Balsoms which Art can contrive for outward applications, whereof the Chymical Apothecary which is curious of the reputation of his Art, and his own, must make use, whensoever he intends to make the Plaister called *Diasulph.* if he expects the operation and vertues which are attributed unto the same.

The first Tincture of Sulphur or Brimstone.

THe Artist having made the plain Balsom of Brimstone, and this Balsom being well impregnated with the internal rednesse of the Sulphur, he must put it in a glasse Cucurbite, and pour upon it twice as much distilled Rain-water, then place the Vessel in *B. M.* and draw off the spirit thereof by distillation, and the æthereal spirit or oyle of the æthereal Turpentine will leave the sulphur which it had extracted and ascend with the water, and the true Balsom of Sulphur shall remain in the bottome of the Cucurbite; which may be given from j. drop to viij. in all diseases wherin the plain Balsom doth conduce, for this is more efficacious. And to make the better the true Tincture thereof, pour upon that which remaines in the Cucurbite very well alkoholized spirit of Wine four fingers high, then cover it with its Blindhead, and having luted them together with bladder and white of Egges, put it to digest and extract in the vaporous Balneo, until the spirit of Wine be tinged with a very high colour; then draw it off and put new in the place, and thus proceed until the spirit will take no more colour; then filtrate all the Tinctures, and distil in *B. M.* till the two third parts be distilled away. They that will add ʒ ij. of good Saffron, in a knot at the last distillation, will encrease very much the vertue of this Tincture, and so shall the Artist be free to make yet some other additions according to his skil and judgement, and as he shall intend it for some peculiar use; But it is very neces-

sary

fary to have it plain, because some other thing can still be added there according to the exigency and several natures and conditions of diseases. This Tincture is more soveraign yet then the Balsoms, because it is more open and more exalted by the help of the spirit of Wine, which is the Menstruum more analogous and conformable to our natural spirits: which causes it to drive and make those Remedies which it hath volatiliz'd to penetrate into the ultimate digestions. Wherefore it may be us'd for internal diseases with a quite different successe then that which Balsoms can produce; it may be administred from ij. drops to x. in wine impregnated with the vertue of Juniper berries, new laid Eggs, or some Pectoral or Alexiterial Syrup.

The second Tincture of Sulphur:

BEat to powder ℔ j. of very pure and very dry Salt-peter, and ℥ iiij. of well chosen Brimstone, and mix them together: after which place a good Crucible, or an earthen pot not glazed, such as in vulgar French is called *un Carnion*, on an earthen round Tile in a wind-Furnace, and put round about it quick Charcoal to kindle by degrees, and so gently at first heat the Vessel until it be red on all sides; then pour into it your matter before mixed by one spoonful at once, and renew it still in the same quantity, after the noise of every throwing in is past; this done, encrease the fire and open all the Registers of the wind-Furnace, and drive the fire till all the matter be reduced and brought to a red masse or lump, which having taken off from the fire, and beaten to powder in a warm Mortar, put in a Matrass, and pour upon gently tartariz'd spirit of Wine to the height of two fingers; then having stopt the Matrass with its Blindhead and well luted, put it to digest and extract in embers until it be tinged with a very high red; then remove the fire and filtrate the Tincture, and draw off half of the Menstruum by distillation in *B. M.* with a very gentle heat, and in the bottom of the Cucurbite will remain a true Tincture of Sulphur; which is an excellent specifick against the Plague, Agues, Scurvy, obstructions of the Liver, and all diseases of the Lungs. The Dosis must be from iij. to xij. drops in the above mentioned Liquors. The

The third Tincture of Sulphur.

AS there are many delicate and tender persons, who cannot endure the smell of Balsoms and tinctures of Brimstone, and yet these Remedies are absolutely necessary for the cure of many great and dangerous diseases; therefore have Chymical Artists endeavoured to reduce into a body again the Tincture of Sulphur and deprive it of its ill-favoured smell, which doth annoy the brain and stomachs of delicate persons, which is performed in the following manner.

℞ as much as you will of the first Tincture of Sulphur prepared as we have prescribed above; draw off one half of the Liquor, and put the remainder in a cold place or Cellar, that the coldnesse of the ayre may reduce to a body again and coagulate this Tincture into Chrystal, which contain in themselves the quintessence and centrical vertues of the Brimstone: separate from these Chrystals the Liquor which is in them, and dissolve them in new spirit of Wine; then draw it off by distillation to a third part, which put again in the Cellar, and let it shute into Chrystals, and so begin anew reiterating this processe seven times, or until these Chrystals have lost altogether all the ill smell they had got in their first preparation. So shall you have a true Magistery, or a true dry Tincture of Brimstone, which will be as useful in every respect as the forementioned Remedies, provided it be used a little longer. The Dosis may be from ij. to x. or xij. graines, in some convenient Liquor, in Lozenges, Conserve, or some appropriated Electuary, suitable to the delicacy of the Patient and quality of the Disease.

The

The salification, To prepare the salt of Brimstone.

THere remaines for the most part in the bottom of the dishes which have been used, to keep in the burning Brimstone in the distillation of the spirit thereof, a kind of feces or blackish *caput mortuum*, light, spongious, and as it were in leaves or beds, which must be calcined and reverberated in a Crucible, until it turns to a whitish gray; make a lye afterwards with distilled Rain-water, or dew of Vitriol, which filtrate and slowly evaporate in ashes to a thin skin or dry bottom; for as there is little of matter, so is there little of salt: wherefore that of Vitriol may alwayes lawfully be substituted in the place of that of Brimstone, without any scruple or question to be made of it, because they spring from the same original and have the same vertue, which is to cleanse and strengthen the stomach, and root from it all seminaries of wormes and corruption, and expel them from thence. This is all we thought necessary to say concerning Brimstone, to instruct fully the Artists whereby they may take opportunity to enlarge further their experiments if they please.

Of Bitumen, *or fat Earth.*

WEE have comprehended generally in this Section, *Sulphurs* so properly called and Bituminous substances; and as we have hitherto spoken of the first, we must end by *Bitumens* or earthly pitch, which are the last. Britumens are generalty understood and accepted for all kind of very fat and clammy Minerals: wherefore Naturalists do constitute several species of it, as the *Karabe* or yellow *Amber*, Ambergrise, *sperma ceti*, Britumen properly called *Asphaltum petroli*, *Seacoal* and *Jet*. We will treat here of the other *Britumens* which are more considerable, and whereon the operations of Chymistry are intended to draw Remedies from them, and separate the purity from the impurity thereof: amongst all others, *Karabe* and Ambergrise obtain the

chief and principal place: wherefore we will only speak of these two kinds of Britumens principally, because the others admit of so little of preparation, as it would be unnecessary to speak thereof, since the Artist may sufficiently be informed by what we have already said, and shall say anon of the *Karabe*.

Of yellow Amber or Karabe.

THe opinions of Authors who have writ about yellow Amber are very various, but principally those of the former age, because they wanted the light of Chymistry, to give them a deeper impression of knowledge in the things of Nature: but in this latter age where we are enlightened by that noble Torch, and where it hath been so successefully used to advance Anatomy of mixt bodies, without any other prevention of mind then to discover truth for our own advantage, and leave it to improve to others; Chymical examination hath taught us, that yellow Amber or *Karabe*, is nothing else but a bituminous juyce or Pitch and Rozin of the Earth well digested, flowing from the subterraneous veines of it into the Sea, where it gathers, coagulates its self and hardens finally more and more. There are three principal kinds thereof; The first which is more esteemed and sought for, is white and opaco us, the most digested and ripened of all, which is known by its purity, pleasant smell and great quantity of volatile salt, which is the most infallible token of its goodnesse and vertue. The second is yellow, which is lucid and transparent, abounding more in oyle then in salt, and by consequence more digested and lesse valuable. The third is that, which between both is mixt of white and yellow, but with some touch of earthlinesse and impurity, which makes it inferiour in worth to the two former. All three are endowed with no common vertues: but if any will make use of yellow Amber for Physical purposes without any other preparation then triturating it upon a Porphyrie stone, the whitest must ever be taken and preferred, having a Balsamick smell almost like flower of Rosemary, when it is a little stirred by friction. It is the white also that must be chosen to make the Tincture or essence thereof, as we shall reach hereafter. But the second

second and third sort may be used for distillation, because the pure part thereof is severed from the impure, and that rectification may correct the defects of the first distillation, by which the vitiousnesse of the natural digestion of *Karabe* is already corrected, and the action of fire hath separated the heterogeneous and grosse substance lurking in it. *Karabe* in the Persian tongue signifies attractive of straw, which is one of the proper qualities of Amber.

The general vertues of Amber are, to warm, deficcate, strengthen and bind moderately; it is principally dedicated to the head, spleen and Matrix. Wherefore it is very successefully made use of in Catarrhs and Fluxions, Epilepsy, Apoplexy, Lethargy and Vertigo, as also to allay all irritations and risings of the Spleen. It is also a wonderful Specifick against all fits of the Mother, and chiefly against the rising of it and suffocations which it causes. It is also a true coagulated Balsom, used against bloody-flux and Gonorrhæa, and above all against the Whites; briefly it may lawfully be said of *Amber*, that it is *the life and soul of Remedies dedicated* to the cleansing of *the Mother*, and redresse all the defects thereof. Some believe, that they that wear Amber Collars are not subject to eye-sores, or diseases in the throat, whereof they say, it hinders the swelling: The Dosis of prepared Amber is from ℈ß. to ʒ j. in new laid Egges, some Syrup, Lozenges, or Conserve.

The Chymical preparations of Amber are *Dissolution or Extraction*, to make the Tincture, Essence or Magistery thereof: and *Distillation*, by the help of which its Mercurial Spirit is extracted, as also the subtile Oyle, Balsamick Oyle, volatile Salt, and Colophony or Rosin.

How the Tincture or essence of Amber is to be prepared.

Put ʒ iij. or iv. of white Amber prepared on a Porphyrie stone in a Blindhead, and pour upon it very much alkoholized spirit of Wine four fingers high, and having shut up close the Vessel and well luted it, put it in ashes to digest, dissolve and extract in a moderate heat, until the liquor be tinged with a fair

golden yellow; then open the Vessel, draw off the liquor by inclination, and reiterate again a new dissolution and extraction until the spirit of Wine takes no more of the Tincture. Filtrate all the Tinctures afterwards, and draw off the three parts of the Menstruum by distillation in the slow heat of *B. M.* and the essence of Ambet will remain impregnated with the taste and smell of its own mixt, which is capable to produce very noble effects, by reason of the subtility of the parts thereof. Some do pretend to make the Magistery thereof, precipitating this Tincture in common water, but they are in a great errour: for it is properly to unmake or undo what hath been made with great labour, since the water drawing to it self the spirit of Wine, the body of the Amber forsakes it and precipitates into a Gum or Rosin, which is not much better then white prepared Amber, except only that it is somewhat purer. The Artist then shall preserve this Essence in liquor, and shall use it in all diseases for which we have assigned the general vertues of *Karabe*. But this Remedy must be exhibited in some Syrup, as that of Cinnamon, Coral, Flowers of Pæony or yolkes of Eeges; it may also be given in æthereal or burning Spirits, as of Juniper, Elder berries, Black Cherries, or spirit of flowers of Lilly Convallium drawn with Sack, because if it was given in any waterish liquor, the Amber would return to a Body, and so would not produce so good nor so quick effects as when it remaines in liquor, and all its parts disunited and volatiliz'd, that the *Archeus* of the Ventricle may bring all the powers thereof to action in the highest perfection. The Dosis may be from x. to xx. drops, even to xxx.

How the Magistery of Amber or Karabe *is to be prepared.*

AS we with very good reason did condemn the false and pretended Magistery of Amber, so must we recommend that which is truly made, and is capable of producing some good effects in relation to health: you may proceed therein as followes.

℞ White Amber reduced to an impalpable powder, as much as you will; put it in a Matrass or Cucurbite, and pour upon it very good and very subtile distilled Vinegar four fingers high, then

then place the Vessel in sand, and let the matter boyl three or four dayes, pouring still new distilled Vinegar very warm, as the first vapours away, and this continue till the liquor is become red; then filtrate it and draw off the Menstruum in ashes to a dry bottom, and the Magistery shall remain in the bottom of the Cucurbite, which dissolve in equal parts of Rosewater, Balm water and Cinnamon water, and digest them together the space of 24 houres, then draw off the water again in ashes slowly, which also must be observed the first time when you draw off the Vinegar; for overhast and too much of fire spoiles all the work, and mars the vertue of the substances. This digestion and distillation must be reiterated three times, but at the third time you must remove the fire after you have drawn off the three parts of four, adding to the remainder ʒ j. of well filtrated juyce of Lemon, or ʒ j. of very acid and well rectified spirit of Vitriol; this done, go on gently in your distillation until the matter be well dryed, which reduce to powder and keep for use: for it is a very good Medicine to provoke swear, and strengthen the heart and its functions; it may be given with hope of very good succesſe in Measels, small-Pox and Pleurisie: but above all it is a Specifick against the Scurvy and its dependances. The Dosis may be from vj. to xv. and xx. graines, in Conserve of Gelly flowers, Confection of Hyacinth, or *Diascordium Fracastoris*, giving to the Patient to drink upon it *Carduus Benedictus* or Meadow sweet (*Ulmaria*) water.

How the distillation of Amber is to be made.

OUr advice to the Son of Art is to take for this operation of the third kind of *Karabe* or Amber whereof we made men ion above, because it containes much oyle, and abounds also in volatile salt. Let him then take ℔ iij. or iv. and having put them in a great Retort, so capacious as the matter may fill up but the third part, let him place it in a close Reverberatory upon the cover of a pot with two fingers thick of ashes under the bottom of the Retort, which will be to it instead of a Lute, and having also fitted to the neck of the Retort a large Reci-

Recipient exactly luted, let him give a gentle and graduated fire until the drops of the acid ſpirit be over, and the oyle begins to appear; then he muſt encreaſe a little the fire, and regulate it ſo that the drops may follow one another. But he muſt begin to encreaſe and drive it hard when he perceives the oyle to grow thicker, and the volatile ſalt to ſublimate it ſelf, which may be known by the vapours and clouds coming forth out of the Retort, and let the fire be kept in this ſtate until the Recipient grows clear of its ſelf, which is an infallible token of the end of the operation. That which is found in the Recipient after diſtillation containes three diſtinct ſubſtances proceeding from one and the ſame root. The firſt is the ſpirit or Mercurial acid and watery liquor of the Amber, which comes forth in the firſt place. Secondly, the oyle which is mixed with much volatile ſalt which hath made it ſomewhat thick, unpleaſant to the ſmell, and high in colour. The third is the volatile ſulphureous ſalt, which is not the leaſt conſiderable of the three in vertue and efficacy. The Artiſt muſt know how to ſeparate skilfully theſe ſubſtances the one from the other, to uſe them each ſeverally according to the ſeveral proprieties which are in them; and this is performed in the manner following.

How the ſpirit of Amber is to be ſeparated.

PUt in a Matraſs with a long neck all what you ſhall finde in the Recipient after the diſtillation of Amber, and ſtop it with another Matraſs, then put it to digeſt in the vaporous Balneo in Sawduſt, in a degree of heat analogous to the natural heat of man, the ſpace of three or four dayes, that the Mercurial and acid Liquor may ſever it ſelf from the oleaginous part; that done, pour the oyle ſwimming above by inclination; and when there ſhall remain but little in the Veſſel, wet a Filter of paper with Balm or Roſewater, and pour into it by degrees and very gently, the Liquor remaining in the bottom of the Matraſs, and the oleaginous ſubſtance will remain upon the Filter, becauſe it is wet with water, and the Spirit ſhall paſſe clear through, which muſt be rectified gently in aſhes to a dry bottom, that if any

any volatile salt remaines dissolved in the Spirit, which almost is of the same nature, it may remain in the bottom without sublimating and burning; keep this Spirit in a well stopt Viol for the time of use. It is a soveraign Diuretick, Disopilative and Cephalick Remedy, which may be used upon all occasions where the Amber may be useful: but particularly against *obstructions, and schirrus of the spleen or splenetical tumors*, when acuated with its volatile salt. The Dosis may be from iiij. drops to xij. in Tincture of Sassafras, white Wine, or Broth.

How the volatile salt of Amber is to be separated and rectified.

After the separation of the acid and Mercurial Spirit of oyle of Amber is made, put about ℔ ß. thereof by it selfe, which may be used when necessity shall require for outward and inward Remedies, though it be not very pleasant: but as it is animated with its volatile salt, so may it much better and more successefully be used against suffocations and fits of the Mother, and Epileptical Paroxysms; as also to apply upon shrunk members, starved and paralytical limbs, where without comparison it is much more excellent and active, then that which is deprived of this friendly Salt. Take then all the remaining oyle, and put it in a great Matras or Blindhead, and pour upon it distilled Rain-water, until it be in the same or a little greater quantity then the oyle; cover and lute the Vessel and put it to digest in ashes in a moderate heat, stirring it every hour, to separate the better the volatile salt from its oyle; for though it be intimately mixed with it, because the oyle is of a volatile and sulphureous nature, yet in processe of time will it come off from it, and be dissolved and united to the water by reason of its saline nature, which easily joynes and unites its self to water. When you see the water well impregnated, remove the fire; separate the oyle, and filtrate the water which is full of the volatile salt of the Amber, as it will be perceived easily by the acid and biting taste thereof; draw off again three parts of the water by slow distillation in ashes, and put the Vessel in a cold place, leaving it

it there the ſpace of two dayes, and you ſhall finde the volatile ſalt chryſtallized and coagulated into a red brown ſubſtance, which ſeparate from the water, and dry between two papers in a ſlow and moderate heat: continue the evaporation of the ſuperfluous water, and draw back all the ſalt, and having dryed it joyn it to the firſt, which is ever the pureſt and the beſt. You may keep part of it as it is if you think fit; if not, put it all in a ſmall Cucurbite, covered with a blind ſtill-Head, and ſublimate it in ſand with a well graduated heat, and ſo ſhall this ſalt riſe fair, pure, white and clean, leaving all its impurities in the bottom of the Veſſel. This volatile Salt is the beſt and moſt excellent part of Amber, worthy that Artiſts ſhould ſeek it with all imaginable curioſity, conſidering its high vertues, which are yet more general and leſſe confined then thoſe of Amber, or its ſpirit or oyle, ſince it is the ſoul and intrinſecal eſſence thereof. It is an admirable Remedy in the firſt beginnings of Dropſies, and particularly in Leucophlegmacy where it is wonderful, becauſe it potently diſcharges the Spleen and all other parts of the lower belly, by Urines and tranſpiration; above all this, it hath all the vertues we have attributed to Amber in a quadruple proportion. I muſt then once more recommend the uſe of it to the ſons of Art, with promiſe and engagement they will not finde themſelves deluded by it. The Doſis, from iij. to xx. graines in Wine, Broths, or other appropriated Liquors, both ſuitable to the Diſeaſe and the Patient.

How to make rightly the Rectification of oyle of Amber.

After the ſeparation and rectification of theſe two firſt ſubſtances, we muſt alſo come to the third, which is the Oyle. For as it is of a brown red colour, ſtinking, thick and groſſe, we muſt teach the Artiſt three ſeveral wayes how to purifie it, and render it fluid, ſubtile and penetrating, that it may the better bring forth the wonderful proprieties and vertues which lye hidden in it.

For the firſt way, Mix the oyle remaining after the ſeparation of the volatile Salt, with ij. parts of aſhes taken from the hearth,

and

and j. p. of decrepid salt, putting as much as needs to reduce all into a lump or paste which may be framed into Pellets, or of a fit bigness to go through the neck of a glasse Retort, which must be filled only half with them, and placed in a close Reverberatory with a well luted Recipient; give it first a gentle fire until the oyle begins to come forth bright and clear, and keep it in this state, or encrease it by little and little gradually, until you observe the falling drops to begin to grow yellow, or inclining to redness; then change your Recipient, and substitute another well luted to it, then encrease the fire somewhat more, to force the oyle to separate it selfe from the least atomes of bodies with which it is mixt, and thus proceed encreasing still more and more, until you finde no more substance to come forth.

The second way of rectifying this Oyle, is, in putting it with Rose, Marjoram, and Balm-water, *ana* three or four pints, in a still-body, and stilling it with the Moores-Head, the Fat and the Worm, making the same observations which we have enjoyned the Artist heretofore for the distillation of vegetable Oyles, and you shall have an oyle of Amber fluid and clear, fit for all those uses and purposes which Authors do commend it for in their Writings.

The third and last manner of Rectification is this: Pour it into a Retort, and put upon it drop by drop its equal weight of spirit of salt, placing the Retort in sand, and distil it with a well regulated and graduate fire, and your oyl will come forth as pure and as clear as may be wished. We will not unnecessarily repeat the vertues of this Oyle, because they may be found comprehended in those which we in general have attributed to *Karabe*. They that desire to know more, must consult Writers that have treated thereof, and do esteem it and cry it up for an Heavenly Remedy.

Of Ambergrise and its Chymical Preparation.

AMbergrise is one of the substance whose original hath much puzzled the wits of Philosophers: but they that have travelled in the *East-India's* and have searched more exactly into the nature of it, do unanimously say that Ambergrise is nothing else

else but a *Bitumen rising from the bottom of the Sea*, which by the vertue of its own salt is coagulated, and then digested and ripened by the Sun beames; it is commonly found about the coasts of *Sofola*, *Mozambique*, *Melinda*, as also towards the *Maldive* Islands aud the *Cap Comorrin*; the best Ambergrise, is that which is of a yellowish gray colour, melts easily, and yields when you thrust into it a hot Needle; but the best tryal is the dissolution thereof in very subtile and fine spirit of Wine, for that which is purest and leaves lesse terrestreity and feces, is ever accounted the best. It is used in Perfumes; and inwardly; it warmes desiccates, resolves, strengthens the stomach and brain, recreates and encreases the vital and animal spirits by its volatile sweet sulphur, which is friendly to our nature. We have shewed a way to make a very good Perfume out of it, in the preparation of Benjuin. But there being a way also of opening and dissolving it, to reduce more easily the power of it into act, we will deliver here two wayes of preparing the Essence or Tincture thereof, to put a period to our work by the preparation of this noble product of the Sea.

The first Essence of Ambergrise.

℞ Ambergrise of the purest ʒ ij. and xij. graines of very good Musk, white Sugar-candy ℈ j. grind altogether very exactly, and all being well mix'd and incorporated, add to it by degrees in the grinding of it ʒ ß. of burning spirit of Roses; this mixiure put in a Matrasso, pour on it ʒ ij. of alkohol of Wine; stop the Matrass with a Blindhead, and put it to digest four dayes in a vaporous Balneo; after which filtrate this Tincture thorow a Cotton, and keep it for use as one of the greatest Restorers that can be found for aged persons and cold constitutions; it encreases the radical moisture, and enables both male and female for generation. It is given from j. drop to vj. in Spanish Wine, Malmesy, Hypocras, or some other analogous Drink, pleasing to the palate and smell of diseased persons or they that take it.

The

The second Essence of Ambergrise.

AS there are many that will be glad to have open and dissolved Amber without any mixture, and being a thing necessary both in the state of health, and in case of sickness, so will we give here a way to make this dissolution plain and without affectation.

℞ then ʒ ii. of very good Ambergrise, and grind them with *ana* of white Sugar-candy, until the two substances be well incorporated and reduced to an impalpable powder, and so exactly united as they seem to be but one body; being thus, put this mixture in a Matrass, and pour upon it four parts of its weight of spirit of wine three times drawn over salt of Tartar; then stop the Matrass, and put it to digest in a vaporous Balneo the space of seven dayes, in a slow and constant heat, stirring often the matter, and when the Artist shall see the dissolution and union of Salt, Sulphur, and spirit of Tartar made, so that the liquor be clear, yellow and pure, except some small feces proceeding from the Ambergrise, which will settle in the bottom of the Matrass, then let him filtrate the whole substance warm through a Cotton in a Viol, and stop it well, and then this essence being cooled, will coagulate it self and be congealed into a substance like unto whitish butter, which melts with the least touch of heat, even of the palm of the hand, into a yellow Liquor very subtile, and very excellent to perfume Broths, Jellies, sweet Meats, Conserves and all kind of Drinks; it may be used against swoonings, weaknesses, to strengthen the stomach, as also to correct the ill smell of the mouth, or stinking breath. The Dosis may be from j. drop to viij. in the above mentioned Liquor.

Thus much we had to say to put an end to the Chymical preparation of Animals, Vegetables and Minerals, thinking to have omitted nothing of what can serve for an exact instruction of such as intend to apply themselves to the study and Art of Chymistry; wherefore we do exhort all Artists to follow punctually the path which we have traced and shewed them, that they may more and

more improve their skill in the search of Physical truths: and above all we exhort all Apothecaries, which are not yet initiated to the mysteries of Chymistry, to bestow seriously their labour and industry in that noble Art, without suffering themselves to be carried away by the unruly torrent of vulgar Opinion, swelling only with ignorance, presumption, malice and envy, that all of them may according to my lawful wishes, render themselves capable of serving the Publick, as I in my particular have endeavoured to be in some manner useful to them: The only earnest desire I have for the good and ease of poor Ptients, and for instructing those of my Profession; having induced and provoked me, to communicate what experiences improved by thirty yeares labour and study have taught me, that all may redound to the glory of God, the good of my Neighbour, and the exaltation of Physick and true Pharmacy.

FINIS,

Et Laus Deo.

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